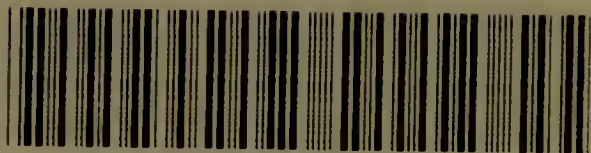


National Association for the Prevention of Consumption
and other Forms of Tuberculosis

TUBERCULOSIS CONFERENCE

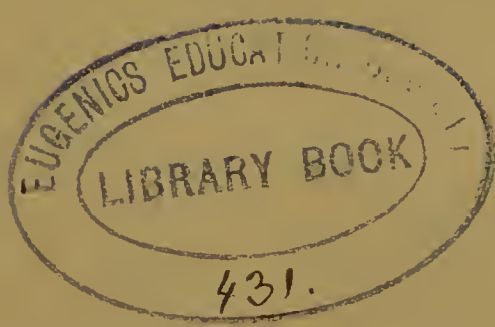
In connection with the Tuberculosis Exhibition, Whitechapel Art
Gallery, E., June 1909



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National Association for the Prevention of Consumption
and other Forms of Tuberculosis

Tuberculosis Conference

In connection with the Tuberculosis Exhibition, Whitechapel Art
Gallery, E., June, 1909



LONDON

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National Association for the Prevention of Consumption
and other Forms of Tuberculosis.

Tuberculosis Conference

IN CONNECTION WITH THE

Tuberculosis Exhibition, Whitechapel Art Gallery, E., June, 1909.

THE COMPULSORY NOTIFICATION OF TUBERCULOSIS IN SHEFFIELD.

By HAROLD SCURFIELD, Esq., M.D., D.P.H.

M.O.H. City of Sheffield.

I PROPOSE to give a short account of the use which is at present made in Sheffield of the information obtained by the provisions of "The Sheffield Corporation Act, 1903," by which tuberculosis of the lung is compulsorily notifiable.

In order to facilitate notification the Corporation have made arrangements with the Bacteriological Department of the University of Sheffield for the examination of the sputum from a person who is suspected of having tuberculosis of the lung.

Two special inspectors are engaged in visiting houses where cases of consumption are notified. On his first visit the inspector obtains as much of the history of the case as possible. He leaves a copy of printed "advice" with the relatives, or with the patient. He particularly insists on the benefits of keeping the windows open as much as possible, and supplies the poorer of the patients with pocket spittoons free of charge. The pocket spittoons are of simple pattern and consist of blue glass flasks with rubber bungs, and are supplied by Messrs. Beatson and Co., of Rotherham, at £2 17s. per gross.

The inspector re-visits at regular intervals, and in all cases

where the house is dirty or the patient is much confined to the house by his illness, he disinfects the room at the time of his visit with a formalin sprayer. It is generally possible to get the patient to vacate the room for the time necessary for the disinfection being carried out. The inspector, of course, advises that the room should be as free from hangings, &c., as possible.

In a small number of cases—about 1 to 2 per cent.—the medical man at the time of notification expresses the wish that the inspector should not call. This request is acceded to on condition that the medical attendant takes upon himself the responsibility of giving all the necessary instructions with regard to precautions for avoiding the spread of infection. The medical attendant is also asked to fill in a form giving some particulars with regard to the history of the case.

The Corporation have now provided hospital accommodation for both males and females.

A house standing on an elevated site in the City, with about an acre and a half of ground, has been adapted for sanatorium treatment for twenty males. There is a garden in which the patients who are able to work are employed for so many hours a day, according to their strength.

The principal objects of the hospital are as follows:—

(1) For the purpose of teaching the patients to live an open-air life, to use pocket spittoons, and generally to take such precautions as will minimize the danger of the spread of infection when they return home.

(2) For the purpose of giving the relatives a rest and enabling the homes to be thoroughly disinfected.

(3) For selecting such cases as may be found suitable for sending to a sanatorium.

No cases are sent on to a sanatorium until they are fit to do some hours of gardening daily.

At the beginning of May of the present year, the Small-pox Hospital was opened for the reception of female consumptives on similar lines.

In the case of both hospitals it is not intended that the patients should remain in the hospital for more than a few weeks.

In admitting cases to the Corporation hospitals we do not stipulate that the sputum should have been examined and found to contain tubercle bacilli. In most cases up to the present time the sputum has been examined, with a positive result. If we made this an absolute *sine quâ non* we would be putting obstacles in the way of sanatorium treatment of cases at the earliest stage, as it is generally recognized that the presence of tubercle bacilli in

the sputum is evidence that there is some breaking down of the lung in progress, and that the disease is not absolutely in its earliest stage.

If patients are thought suitable for sanatorium treatment they are usually sent away for a period of about four months. Cases have been sent from Sheffield to various sanatoria. At present there are a considerable number of Sheffield patients at the Convalescent Home at Withernsea, half of which is devoted to the use of consumptives.

The Hospital for Males was opened on June 22, 1908, so that we have not been greatly faced with the difficulty of finding work for the consumptives after their return from the sanatorium. There is no doubt that that will be a great difficulty. It is hardly necessary to point out that the difficulty will be greatly decreased when a proper system has been devised for providing against the unemployment of healthy workers. It stands to reason that while it is difficult to find work for healthy unemployed, it must be ten times more so to find work for the consumptive unemployed. There are, however, many consumptives who can return to their ordinary occupation without having to learn a new one.

Hospital treatment on modern lines is also provided at the Sheffield Royal Infirmary and at the hospitals belonging to both Boards of Guardians for consumption.

The cases that come into the hands of the Boards of Guardians are generally too far advanced for sanatorium treatment.

Arrangements have been made with the other hospitals by which cases thought to be suitable for sanatorium treatment may be sent to the Corporation hospitals and subsequently to a sanatorium if found to undergo the work test satisfactorily.

By means of a conference between the various medical men concerned, arrangements have been made by which similar instructions will be issued to prevent the spread of the infection in the case of all patients, whether treated at the Corporation hospitals, the Royal Infirmary, or the workhouse hospitals. At all institutions they will be supplied with similar pocket spittoons, and taught to clean them in the same way.

In passing, I may draw attention to the fact that since the notification of consumption was adopted, and the public have been taught that the disease is infectious, an increased effort has been made to get the poorest consumptives to enter the workhouse hospitals. This is shown by the following table, which gives the percentage of consumptives dying in the workhouse hospitals during recent years:—

TUBERCULOSIS CONFERENCE

PHTHISIS MORTALITY IN CITY AND WORKHOUSE HOSPITALS.

Year			Number of Deaths from Consumption in Workhouse Hospitals		Number of Deaths from Consumption in the City		Percentage occurring in Workhouse Hospitals		Death-rate per 100,000 from Consumption in Sheffield
1889	..	..	62	..	552	..	11.2	..	168
1890	..	..	75	..	618	..	12.1	..	192
1891	..	..	81	..	551	..	14.7	..	169
1892	..	..	59	..	459	..	12.9	..	139
1893	..	..	74	..	552	..	13.4	..	165
1894	..	..	72	..	502	..	14.3	..	147
1895	..	..	76	..	473	..	16.1	..	136
1896	..	..	56	..	453	..	12.4	..	128
1897	..	..	90	..	522	..	17.2	..	146
1898	..	..	98	..	448	..	21.9	..	123
1899	..	..	117	..	502	..	23.4	..	136
1900	..	..	135	..	539	..	25.0	..	143
1901	..	..	142	..	580	..	24.5	..	141
1902	..	..	121	..	491	..	24.6	..	117
1903	..	..	142	..	560	..	25.4	..	134
1904	..	..	154	..	536	..	28.7	..	124
1905	..	..	133	..	486	..	27.4	..	110
1906	..	..	126	..	452	..	27.9	..	101
1907	..	..	146	..	521	..	28.0	..	112
1908	..	..	214	..	560	..	38.2	..	121

In considering the table it has to be remembered that voluntary notification was begun in November, 1899, and compulsory notification came into force in November, 1903.

The information obtained by the inspector on his visits is used in other ways. Of course, if there is any sanitary defect about the home of the consumptive it is reported to the District Inspector of Nuisances, who deals with it in the ordinary way. The place where the consumptive works is ascertained and the information passed on to the Workshops Inspector. The Workshops Inspector visits the place of work with a dual object—firstly, to see if there are any sanitary defects, such as darkness or bad ventilation; and, secondly, to see if the consumptive at his work is so placed as to be a danger to his fellow-workers. If the consumptive works at a factory the matter is reported to His Majesty's Inspector-of-Factories.

The inspector also ascertains the particulars with regard to the family history, and if there are any delicate children attending school. The delicate children in the family of a consumptive are reported to the Schools Medical Officer, who pays particular attention to them on his visit to the school.

An Open-air School has just been opened for dealing with delicate children, and it ought to be possible by means of this system to deal with children belonging to consumptive families at a very early stage.

The Compulsory Notification Act has been in force since November 1, 1903, and there has been no opposition on the part of the public or the medical practitioners. I have no doubt that there has been some little failure to notify on the part of the medical practitioners. This, however, is only what one would expect with a new Act.

The following is a statement of the number of deaths from consumption in the City of Sheffield, together with the number of persons who have died without being notified in the eleven half-years which have elapsed since the Act came into force :—

Period	Number of Deaths from Tuberculosis of the Lung				Number of Persons who have Died from Tuberculosis of the Lung without being Notified		
Nov. 1, 1903, to April 30, 1904	315	..	..	19	
May 1, 1904, ,, Oct. 31, 1904	241	..	..	19	
Nov. 1, 1904, ,, April 30, 1905	272	..	..	19	
May 1, 1905, ,, Oct. 31, 1905	232	..	..	11	
Nov. 1, 1905, ,, April 30, 1906	217	..	..	13	
May 1, 1906, ,, Oct. 31, 1906	211	..	..	19	
Nov. 1, 1906, ,, April 30, 1907	285	..	..	21	
May 1, 1907, ,, Oct. 31, 1907	240	..	..	20	
Nov. 1, 1907, ,, April 30, 1908	306	..	..	12	
May 1, 1908, ,, Oct. 31, 1908	235	..	..	11	
Nov. 1, 1908, ,, April 30, 1909	320	..	..	15	

The provisions of the Act are being carried out smoothly and without friction, and I am of opinion that the work is doing a considerable amount of good, but it is too soon to speak as to any effect on the death-rate.

THE TUBERCULOSIS DISPENSARY.

By R. W. PHILIP, Esq., M.D., F.R.C.P.E., F.R.S.E.

*Physician to the Royal Infirmary and to the Royal Victoria Hospital
for Consumption, Edinburgh.*

I SHALL endeavour to compress into half an hour's talk the main features of a somewhat complex organization. While complex because of the complexity of the subject, the organization is far from complicated. It is, on the contrary, extremely simple. In the present rapid sketch I shall avoid collateral matter as much as possible.

Let me ask you to look for a moment at the accompanying charts. The first (Table I.) illustrates clearly the universality of tuberculosis. We are apt sometimes—many persons in Great Britain are apt—to speak as if tuberculosis were especially a disease of this country. Let me remind you that not only is it not especially a disease of this country, but that England and Scotland stand actually lowest in the list of mortality from tuberculosis.

TABLE I.—SHOWING MEAN ANNUAL MORTALITY FROM TUBERCULOSIS IN
EUROPE PER 10,000 OF POPULATION.

Russia	...	...	...	39·86	Denmark	...	...	...	19·12
Austria	...	...	...	36·25	Holland	...	...	...	18·84
Hungary	...	...	...	31·84	Italy	...	...	...	18·71
France	...	...	...	30·23	Belgium	...	...	...	17·67
Sweden	...	...	...	23·10	Norway	...	...	...	17·37
Germany	...	...	...	22·45	Scotland	...	...	...	17·27
Switzerland	...	...	...	20·31	(1906)	...	...	...	12·53
Ireland	...	...	...	20·29	England	...	...	...	13·58
(1906)	...	...	...	20·40	(1906)	..	...	...	11·50

The next chart (fig. 1) illustrates another point. It represents the mortality curves of England, Scotland, and Ireland for twenty years. At the same time I show you two other curves (figs. 2 and 3), one representing the mortality from pulmonary tuberculosis in London during twenty years, and the other, the mortality in Edinburgh during twenty years.

FIG. 1.—CHART SHOWING MORTALITY FROM PULMONARY TUBERCULOSIS IN IRELAND, ENGLAND, AND SCOTLAND, DURING TWENTY YEARS PER 10,000 OF THE POPULATION (1887-1906).

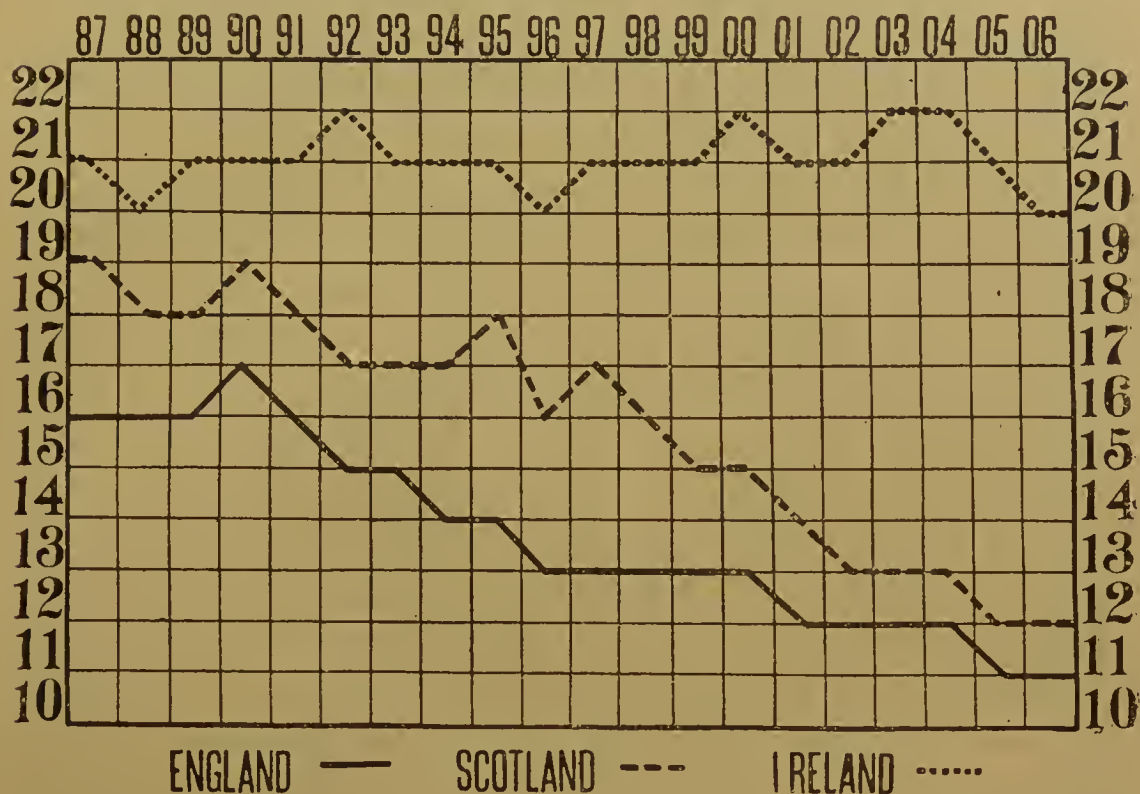
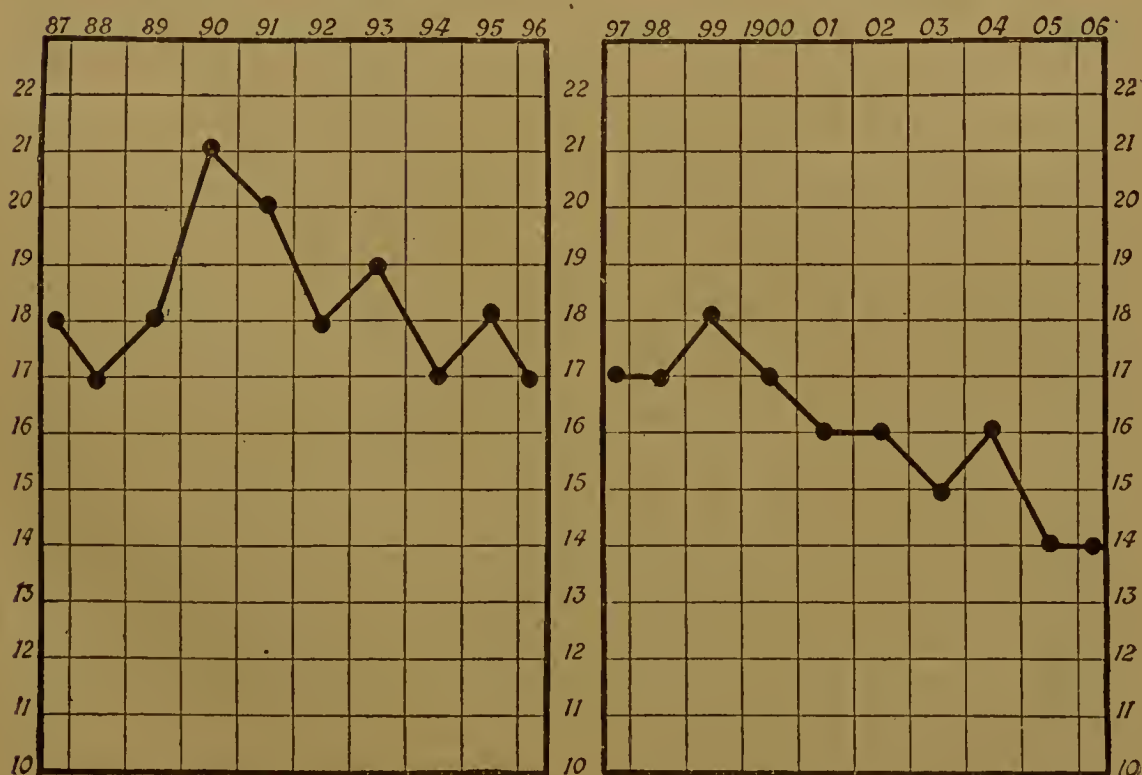


FIG. 2.—CHART OF DEATH-RATE FROM PULMONARY TUBERCULOSIS IN LONDON FROM 1887 TO 1896 AND FROM 1897 TO 1906.

(*Thirty-fifth Annual Report of Local Government Board.*)

1887-1896.

1897-1906.



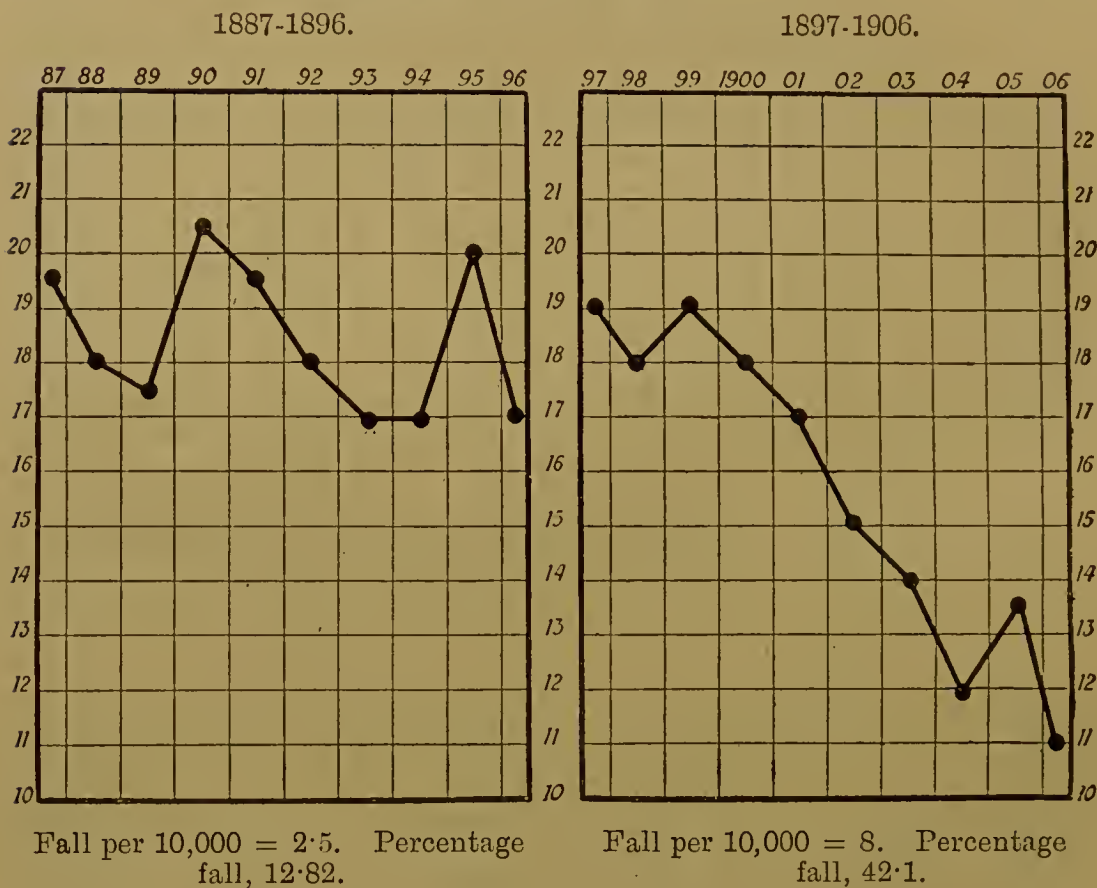
Fall per 10,000 = 1. Percentage fall, 5.5.

Fall per 10,000 = 3. Percentage fall, 17.65.

Those several curves indicate first, that there is an immense amount of tuberculosis in each of the divisions of the Kingdom, and in our large centres; second, that tuberculosis is, in most places, a diminishing quantity, diminishing from a variety of causes; and lastly, and of especial moment, that the diminution has been much more rapid in some places than in others.

FIG. 3.—CHART OF DEATH-RATE FROM PULMONARY TUBERCULOSIS IN EDINBURGH, FROM 1887 TO 1896 AND FROM 1897 TO 1906.

(*Edinburgh Health Report*, 1906.)



Taking England and Scotland, you observe the mortality curve has descended rapidly, while in Ireland mortality from tuberculosis remains at the old level of twenty years ago. Again, taking London and Edinburgh, in the first ten years (1887-1896) the curves from the two cities are almost identical. In both cases there is a gratifying descent. In the later ten years (1897-1906) the London curve descends at a quicker rate than before, the diminution in mortality corresponding to something like 17.6 per cent. During the same ten years the Edinburgh curve drops in a still more striking degree, the diminution in mortality amounting to 42.1 per cent.

The figures shown in these mortality tables represent a vast amount of tuberculosis, the handling of which requires well-conceived and carefully concerted effort. The remarkable descent in the mortality curve indicates that causes have been operative conducing to that desirable end. The absence of such descent, or limitation in its degree, suggests that such causes have been inoperative or less effective than they might have been.

My next point is that the mortality figures, great as they are, represent most imperfectly the actual amount of tuberculosis with which we have to deal. Without troubling you as to methods of calculation, I may say that careful computation has convinced me that in order to obtain approximately the sum total of cases which, from the public health point of view, are worthy of consideration and supervision, we may safely multiply the mortality from tuberculosis in a given district by ten. For example, in the Borough of Stepney, where I happen to notice you have approximately 500 cases of death per annum, you may reckon that there exist no fewer than 5,000 cases worthy of regard from the public health point of view.

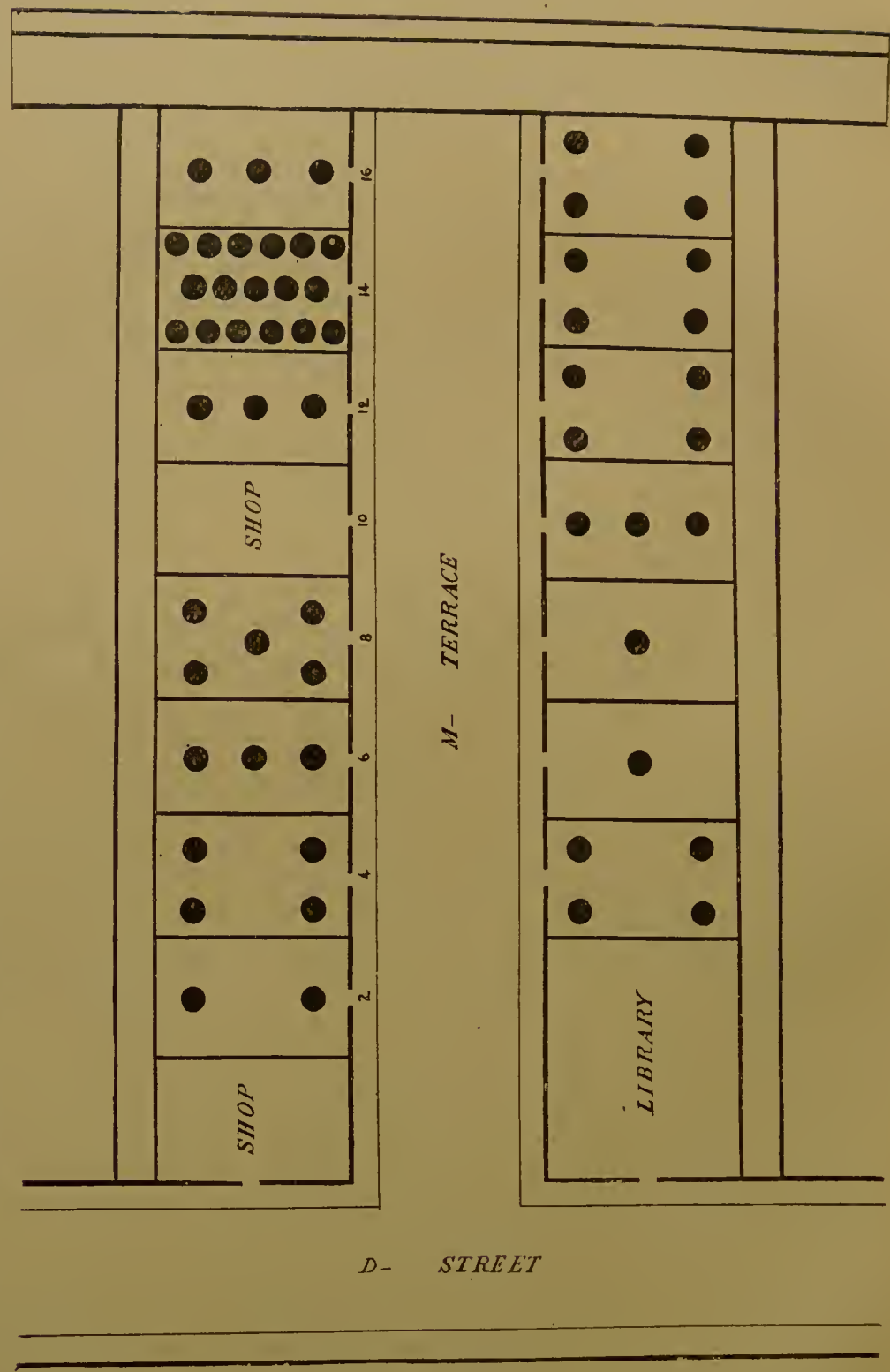
Further, this aggregate, great as it is, does not exhaust the matter. Tuberculosis has very special features of its own. In the first place, it is an infective disease; we may in this sense speak of it as epidemic. In the second place, it haunts and lingers round certain localities; it is an endemic disease.

As an infective disease it requires to be treated on the same general principles which have been found successful in relation to the treatment of other infective diseases. Yet, to propose that all cases of tuberculosis should be segregated, as we segregate scarlet fever or typhus, would be manifestly absurd. The course of pulmonary tuberculosis is so very various. Thus, some cases last a few weeks, and other cases last, it may be, twenty years. Again, there are "closed" cases without a discharging lesion, that is, without bacillus-containing expectoration; while, on the other hand, there are cases of "open" tuberculosis, constantly disseminating bacilli. Again, you have tuberculosis occurring in persons who lead a relatively isolated life, where the condition is totally different from tuberculosis occurring in persons engaged in workshops and living in close communion with other people.

It is obviously necessary that the methods of treatment which are applicable to infective disease generally should be modified and adjusted to meet the varying issues which tuberculosis presents.

As an endemic condition tuberculosis resides especially in the homes of our people. There can be no doubt—and I speak as the result of over twenty years' experience in relation to the tubercu-

FIG. 4. — ILLUSTRATING DISTRIBUTION OF PULMONARY TUBERCULOSIS THROUGHOUT A CITY POPULATION. EACH DOT REPRESENTS A CASE UNDER THE DIRECTION OF THE VICTORIA DISPENSARY FOR CONSUMPTION. NOTE THE EXTREME FREQUENCY IN ONE HOUSE.



losis dispensary—that tuberculosis is essentially a disease of the home. It is essential, therefore, not merely that we treat individual patients suffering from pulmonary tuberculosis, but that we obtain entrance to the infected dwelling, with a view to determine the conditions of environment which favour the disease, and also—and I would lay special stress on this—with a view to determining the presence of other infected persons—so-called “contact cases.”

In this connection the increasing evidence as to the frequency of tuberculosis among school children must be kept in view. Some of the homes of the poor can truly be described as tuberculous nests. The drawing (fig. 4) affords an illustration of what I mean. You have here the ground-plan of a short street containing fourteen houses, a comparatively new working-class street in the west end of Edinburgh, and you observe that while cases coming to the Dispensary, or cases discovered by the Dispensary, occur in every house—one, two, three, or four in different houses—one house presents actually as many as seventeen cases. My point is that had we waited till these seventeen cases came to us, we should be waiting still, and we should have waited too long. In order to eradicate the disease we must *not wait for*, we must *seek*, the cases.

In this connection I should like to refer to the extremely interesting and valuable information which has gradually accumulated by the domiciliary activities of the Dispensary. Let me refer more particularly to the following statistics (Tables II. to VI.). Taking a thousand consecutive cases, I find that the infected person slept in the same bed along with one or several other persons in 659 cases; that is, 65·9 per cent. In 110 other cases the patient occupied a separate bed, but the same room with other persons. Only in 231 instances had the patient a room to himself. Again, I find that no fewer than 167 of the cases occurred in houses of one room only, 470 cases in houses of two rooms, and 238 cases in houses of three rooms. Another analysis showed that the thousand dwellings were occupied collectively by 5,143 persons, or, stated otherwise, 1,000 cases of infection implied risk of infection to 5,143 persons—that is, each infected individual threatened on an average 5·14 persons.

TABLE II.—SHOWING FREQUENCY OF INFECTION (IN 1,000 CASES).

(a) Positive in	...	...	...	...	...	614 cases (= 61·4 per cent.)
(b) Probable in	...	...	...	...	...	117 „ (= 11·7 „)
(c) Uncertain in	...	...	...	...	...	269 „ (= 26·9 „)
						<hr/>
						1,000 100·0

TABLE III.—SHOWING SLEEPING ACCOMMODATION (IN 1,000 CASES).

(a) In one bed, with one or several other persons	...	...	...	...	659 cases (= 65.9 per cent.)
(b) In bed alone, but with other persons in same room	...	...	...	...	110 ,, (= 11.0 ,,)
(c) In one room alone (often bed-closet)	...	...	...	...	231 ,, (= 23.1 ,,)

					1,000 100.0

TABLE IV.—SHOWING HOME CONDITIONS (IN 1,000 CASES).

Association of Tuberculosis with Overcrowding.

House of 1 room in	...	...	...	...	167 cases (= 16.7 per cent.)
,, 2 rooms in	...	...	...	...	470 ,, (= 47.0 ,,)
,, 3 ,,	...	...	...	...	238 ,, (= 23.8 ,,)
,, 4 ,,	...	...	...	...	87 ,, (= 8.7 ,,)
,, 5 ,,	...	...	...	...	24 ,, (= 2.4 ,,)
,, 6 ,,	...	...	...	...	13 ,, (= 1.3 ,,)
,, 7 ,,	...	...	...	...	1 ,, (= 0.1 ,,)

					1,000 100.0

TABLE V.—OVERCROWDING AND THE ASSOCIATED DANGER OF DIRECT INFECTION (IN 1,000 CASES).

167 dwellings with 1 room were occupied by	520 persons (= 3.1 per dwelling.)
470 ,, ,, 2 rooms	2,419 ,, (= 5.1 ,,)
238 ,, ,, 3 ,,	1,406 ,, (= 5.9 ,,)
87 ,, ,, 4 ,,	554 ,, (= 6.3 ,,)
24 ,, ,, 5 ,,	152 ,, (= 6.3 ,,)
13 ,, ,, 6 ,,	86 ,, (= 6.6 ,,)
1 dwelling ,, 7 ,,	6 ,, (= 6.0 ,,)

1,000 dwellings occupied by 5,143 persons (= 5.14 per dwelling.)

Thus the 1,000 cases of infection involved danger of infection to 5,143 persons, or each individual case threatened, on an average, 5.14 persons.

TABLE VI.—ANALYSIS OF THE NUMBER OF INHABITANTS IN THE 167 DWELLINGS CONSISTING OF *One Room Only*.

3 were occupied by 8 persons each.

3	7	,,
7	6	,,
11	5	,,
31	4	,,
48	3	,,
46	2	,,
18	1 person	,,

167

Frequently *several* infected persons were found in the same house.

These statistics might be added to greatly, but those I have cited suffice to show that the amount of tuberculous disease in a given district, and consequently the amount of ground to be covered by our efforts, is greater than is commonly supposed. Recognizing that the eradication of tuberculosis is a duty incumbent on every community, we are faced with the practical question

as to whether we have realized the complex relation of cause and effect which links society with the tuberculous problem. The issue before us is not, as sometimes stated: "Given a tuberculous patient, how are we best to restore him to his household, how are we best to recover his health, and render him fit to make bread and butter once more?" That, it is true, is an important question—very important for the individual—and one which will not be lost sight of. But the problem for communities is a vastly larger one, namely: "Given a disease which is responsible for about one-seventh of the total mortality, a disease which is further responsible for an incalculable amount of physical suffering and financial waste, a disease which has been proved to be of infective nature, and to be largely conditioned by social environment, how are we best to get rid of it?"

When we have regard to the larger prospect it becomes clear why anti-tuberculosis attempts have failed in the past. They have failed from lack of comprehensive character. Their outlook has been much too limited. Take for example the sanatorium. The sanatorium has its own sphere and value. This is incontrovertible. But the sanatorium alone—indeed, any number of sanatoriums—will not meet the wider issue. In like manner notification—excellent as it is so far as it goes—notification brings us to the threshold only of the pressing problem before us. In order to be of real, practical efficacy the plan of campaign must be comprehensive, co-extensive with the evil to be met, thoroughly organized, and the several factors in the scheme satisfactorily co-ordinated.

Before passing to the details of such a scheme let me say clearly that I place in the very forefront of all preventive measures the larger physiological and sanitary principles which have contributed so much to the reduction of disease of every kind in this country. It would be difficult to emphasize too strongly the significance of the sanitary legislation of the past three-quarters of a century. We must see that our local authorities use more fully the powers which they already possess. Where these powers are insufficient we must insist that the Legislature shall, under careful guidance, give still greater powers. Beyond this, however, it seems high time that the country generally should attack the problem in more specific fashion. A well-conceived and organized plan of operations is needed, and I submit for your consideration to-day a scheme, not drafted on *a priori* principles, but a scheme which has gradually evolved itself during the past twenty-two years in relation to the activities of the Victoria Dispensary for Consumption at Edinburgh, an institution which, it may be recalled, was historically the first of its kind.

The purpose of the Tuberculosis Dispensary was primarily to form a central depôt in relation to all the tuberculous material existing among the poorer working classes in the given district. I shall return to the details of this shortly. The dispensary was placed in as close relationship as could be achieved—and personally I do not think the relationship can be too close—with the Medical Officer of Health (fig. 5). It is of greatest importance that the Medical Officer of Health should be in closest touch with the activities of this part of the organization, while not himself actually conducting the operations.

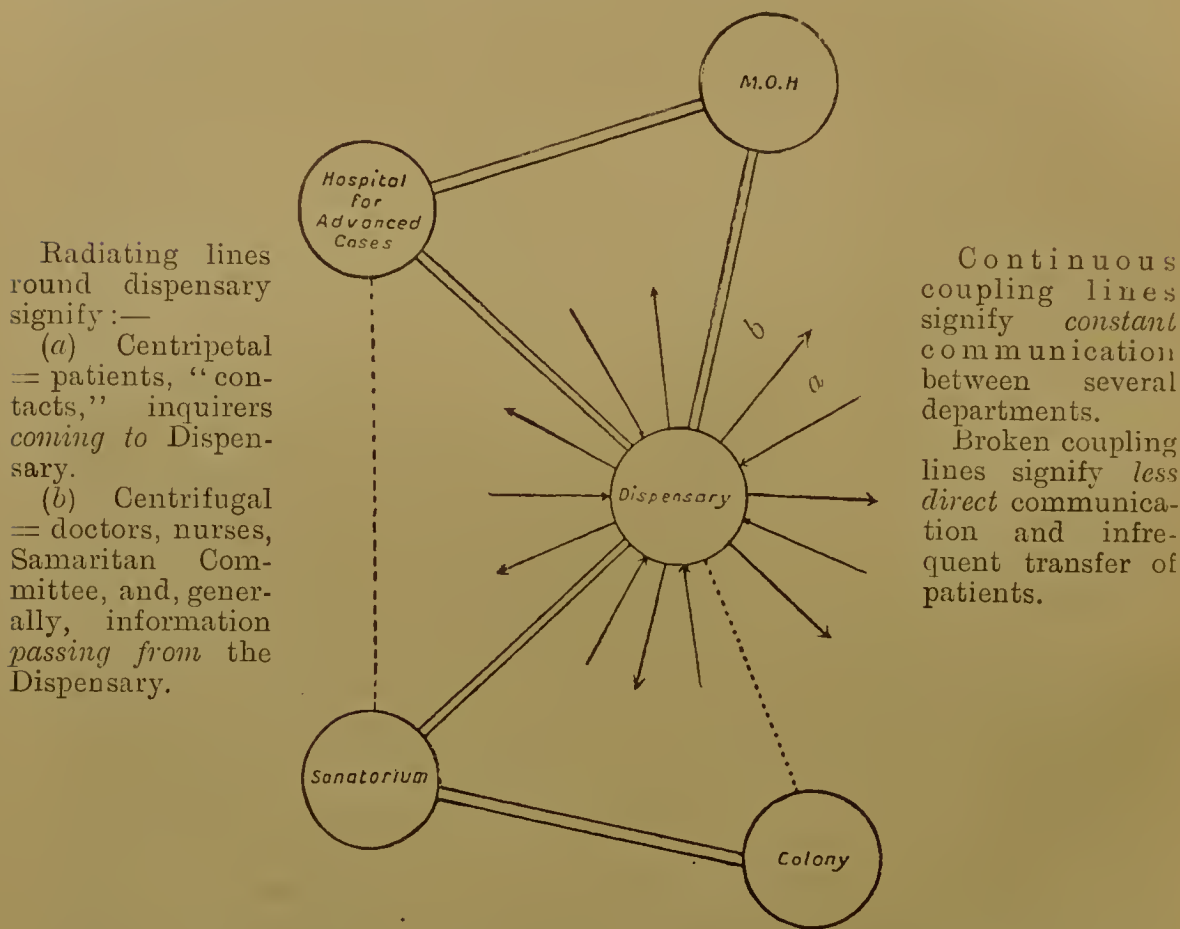


FIG. 5.—SHOWING RELATIONSHIP OF DISPENSARY TO OTHER FACTORS IN THE ANTI-TUBERCULOSIS CAMPAIGN.

Then, further, closely related to the dispensary there is the hospital for advanced and dying cases of tuberculosis. This may be run, as in Edinburgh, in two sections: one hospital by the Municipality for cases occurring among poorer citizens, and another by the Poor Law authorities for patients under that system. There must be abundant provision for advanced cases, and let me say in passing, that we do not find the difficulty hinted at this

morning by Sir Clifford Allbutt. In Edinburgh the purpose and nature of the hospital is well known, but we have experienced little difficulty in passing patients into it, and so having them enjoy the benefit of such a hospitable asylum when they are in the later stages of illness.

Further, closely related to the Dispensary is the Sanatorium, the Royal Victoria Hospital for Consumption, with 100 beds available for relatively *early* cases. Only cases of pulmonary tuberculosis are received. The difficulty is that even yet there remains something to be desired on the part of the profession in the selection of early cases.

In closest relationship with the Sanatorium comes the Working Colony, to which are transferred a certain number of the patients who have been cured at the Sanatorium, and to whom return to ordinary occupation would mean relapse and economic leakage.

Such a collective scheme covers all the more important issues—I think I may say, covers *all* the issues—which occur in connection with the tuberculosis question. On the present occasion I have been asked to dwell a little more in detail on the part played by the Dispensary. I shall not keep you very long.

My object in the erection of a special Tuberculosis Dispensary was the formation of a central institution to which persons of the poorer classes affected by tuberculosis should be invited, and to which all inquiries regarding tuberculosis might be directed. It seemed that by means of a well-conceived plan of operations access would be readily obtained to existing foci of disease, not merely affecting individuals under examination, but also—and this is the main point—affecting other members of the same household, or the dwelling itself. The programme of the Dispensary was as follows :—

- (1) The reception and examination of patients at the Dispensary, the keeping of a record of every case, with an account of the patient's illness, history, surroundings, and present condition, the record being added to on each subsequent visit.

- (2) The bacteriological examination of expectoration and other discharges.

- (3) The instruction of patients how to treat themselves, and how to prevent or minimize the risk of infection to others.

- (4) The dispensing of necessary medicines, sputum bottles, disinfectants, and where the patient's condition seemed to warrant it, foodstuffs, and the like.

- (5) The visitation of patients at their own homes by (1) a qualified medical man, and (2) a specially trained nurse, for the double purpose of treatment, and of investigation into the state of

the dwelling and general conditions of life, and the risk of infection to others.

(6) The selection of more likely patients for hospital treatment, either of early cases for sanatoriums, or of late cases for incurable homes, and the supervision when necessary of patients after discharge from hospital.

(7) The guidance generally of tuberculous patients and their friends, and for inquiries from all interested persons on every question concerning tuberculosis.

That being the primary plan, I propose to say a few words as to the methods of procedure. Perhaps the simplest way is to suppose that we accompany a patient to the Dispensary, and then follow that patient to his home, as is done by the Dispensary doctor and nurse.

The patient on arrival at the Dispensary has his name entered and the medical history taken. I show you in the frame the various forms we use (indicating framed collection of printed forms). When the diagnosis of tuberculosis is made the case is in the first place notified to the Medical Officer of Health. The diagnosis is generally confirmed by bacteriological examination of the expectoration. It is also determined whether the case is one suitable for treatment at home; for you must remember that a vast proportion of our tuberculosis patients must be treated at home, and this for many reasons. Well, it is determined whether the patient may safely and advantageously be treated at his own home, or whether, on the contrary, the case is suitable for the Sanatorium (the Royal Victoria Hospital), or whether it has progressed so far that it should be sent to the hospital for advanced cases. In the last instance, in addition to the routine notification, the Medical Officer of Health receives a request urging the transference of the patient to the segregation hospital.

While the patient is waiting at the Dispensary he is supplied with simple literature containing rules to be followed in the prevention and treatment of the disease, and along with this he receives a sputum jar.

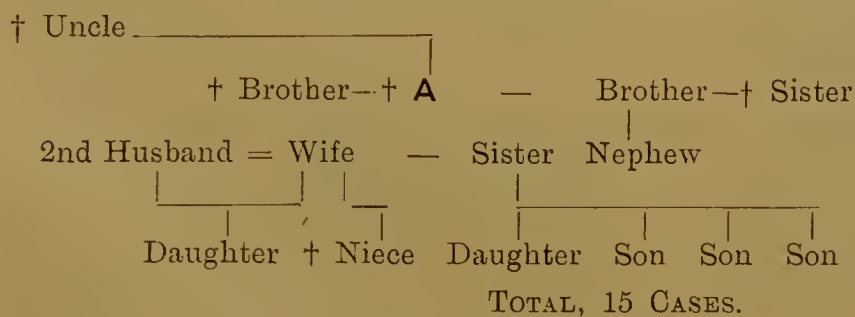
Let us now follow the patient to his own home. He has been told what to do, and in the particular case we shall suppose he is a patient suitable for home treatment, that is to say, he is slightly affected, or the disease is comparatively chronic, with consequently less risk of infection. The trained nurse, accustomed to sanatorium methods, makes a visit, and makes a most careful scrutiny, although—wise woman as she is—she does not let any one see she is making the scrutiny. The patient is further trained with regard to preventive measures, and is taught to observe the utmost care in relation to expectoration.

If, on inspection of the house, it seemed desirable, the Medical Officer of Health is again communicated with, and the house disinfected, the walls, it may be, peeled and lime-washed, &c.

Throughout many years we have had no practical difficulty in accumulating a remarkable collection of material regarding the distribution of tuberculosis in Edinburgh, the details including not merely a statement as to the sanitation of the house, but as to the condition of other members of the family, and so on.

These reports are signed by the nurse and passed on to one of the assistant doctors who carefully revises them himself and then countersigns them. This brings me to the visit of the doctor to the home. This follows in every case. In some instances this may mean the treatment of an individual patient, but I should ask you to note that this is not the doctor's primary object in going to the home. His object is a double one: first, that he may himself investigate the condition of the home as to the need of any special measures on the part of the Medical Officer of Health, and secondly, that he may institute what I have termed the "march past" of the contacts—that is to say, he may have an opportunity of looking at the whole household. We find people only too delighted to have this medical inspection with a view to early diagnosis, so that, if by chance there may be seedlings of tuberculosis in the household, these may be detected and treated at the hopeful stage.

TABLE VII.—EXAMPLE OF RESULT OF SYSTEM OF DOMICILIARY VISITATION.



† *Died of consumption.*

At whatever stage they are — and it is remarkable how frequently advanced disease is thus discovered—they come under the direction of the Dispensary. In illustration of this let me draw your attention to the chart (Table VII.), one illustration out of many which I might submit. You observe that as a result of the visit of one patient, A, to the Dispensary no fewer than fifteen patients came under our cognisance. The majority of these would probably not have come of themselves to the

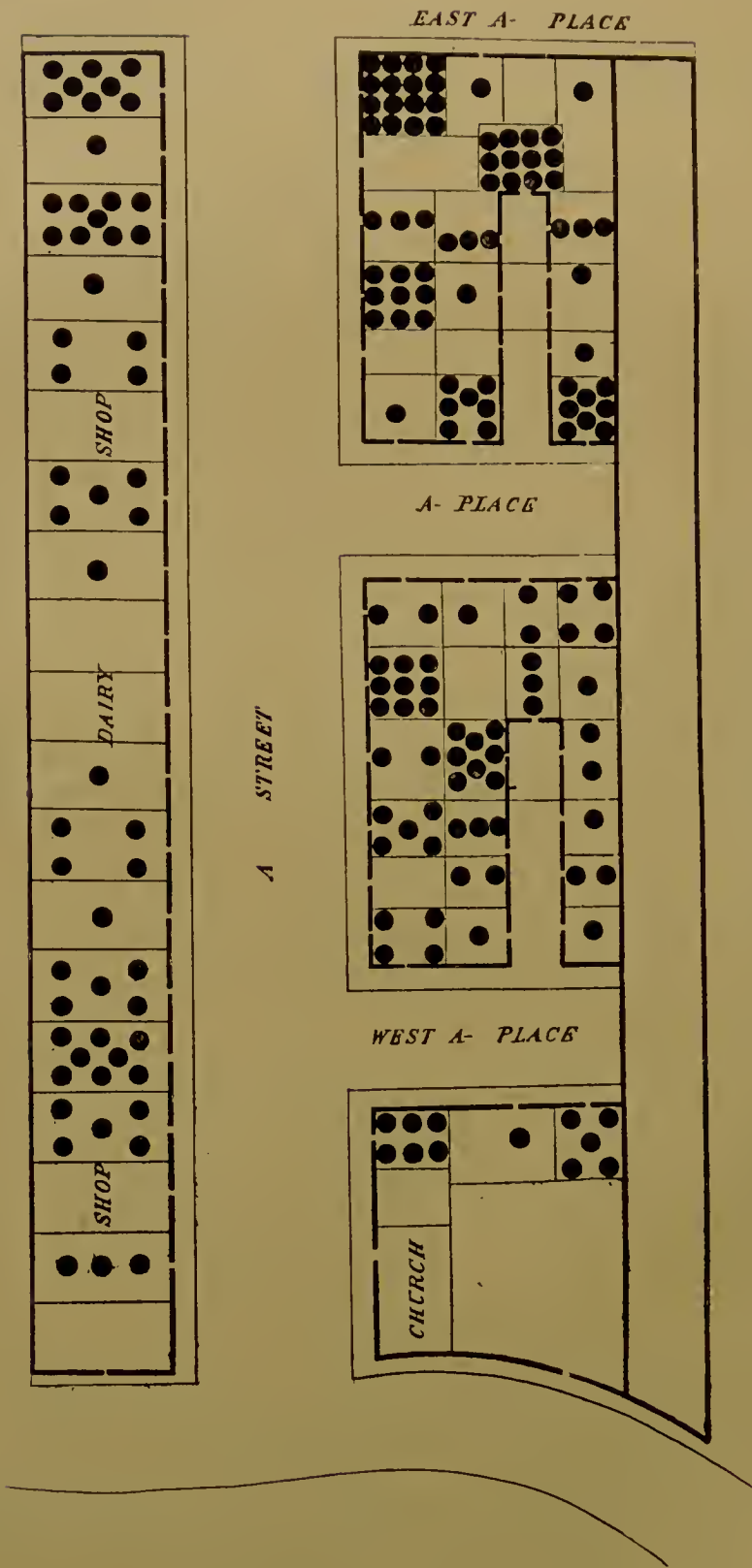


FIG. 6.—SECTIONAL MAP SHOWING DISTRIBUTION OF CASES OF CONSUMPTION.
Each dot = a dispensary case.

Dispensary. It was the domiciliary investigation and "march past" of the contacts which led to their discovery. Quite a number of these patients thus detected are children.

After discovery, each of the cases is treated on the same lines which we have considered in relation to patients coming to the Dispensary themselves—that is to say, each is guided and treated according to the stage of his illness. In the case of school children the School Board is communicated with, and the attention of the inspecting officer is drawn to the child.

The last feature of the Dispensary's activity is illustrated by the schedule (Table VIII.) which I submit. By means of these forms we have accumulated for the City of Edinburgh an enormous amount of information regarding the distribution of tuberculosis in the district. Let me cite another chart (fig. 6) in illustration. It represents three streets in one of the poorer, although not the poorest, parts of Edinburgh. Each dot represents a case that either came to the Dispensary or was discovered by the "march past" to which I have referred. You will readily realize that what occurs in one district occurs in all. The cases are further individualized by means of a system of "card-indices." The result is that we now possess within these drawers a remarkably interesting and exhaustive tuberculosis map of the city.

TABLE VIII.—SCHEDULE OF INQUIRY REGARDING DISPENSARY PATIENTS.

<i>No. in Ledger.....</i>	<i>Date of Report.....</i>
Name ?	Age ?
Address ?	Married or single ?
Occupation ?	Has patient changed occupation ?
Able to work full time ?	Or part time ?
If unable, confined to bed ?	
How long ill ?	
Situation of house (area, ground floor, first, &c.) ?	
Number and ages of inmates ?	
Number and description of rooms ?	
General aspect of house (clean, damp, dusty, smelly) ?	
Number of windows ?	Can they open ?
Are they kept open (a) by day ?	
(b) by night ?	
Have they always been kept open ?	
Does patient sleep alone (a) in bed ?	
(b) in room ?	
How is washing of clothes done ?	
How long in present house ?	
If has moved within two years, previous addresses ?	
Have there been illnesses or deaths in house ?	
(a) In own time ?	
(b) In previous occupancy ?	
Exposure to infection (a) at home ?	
(b) at work ?	
(c) among friends ?	

Present health of other members of household ?

What precautions taken to disinfect ?

T.B. in sputum ?

T.B. in dust of room ?

General dietary ?

Teetotal ?

General condition (well-to-do, badly off) ?

Proximate income of household ?

Assisted by societies, church, friends, rates ?

Signed..... Reporter.

..... Medical Officer.

Before sitting down I should like to impress upon you the significance of a *complete* organization. Let me ask you to conceive the Tuberculosis Dispensary as the centre of anti-tuberculosis operations in the given city, or in the case of larger towns, in the given district. Let me ask you to think of it also as an information bureau towards which anyone interested can come and say, "What am I to do in this particular case?" At the morning discussion one or two gentlemen remarked, "We are perfectly helpless. What are we to do with the cases after they have been discovered?" In Edinburgh I should say, "Go to the Tuberculosis Dispensary and find out. The authorities there will be able to decide what is the best course to follow." The Dispensary is, further, the reception bureau for every patient who may be the subject of tuberculosis, or who may possibly be suffering from tuberculosis without knowing it. In the latter case interested friends, or employers of labour, may send him, or he is discovered by the "march past."

The Dispensary acts likewise as a "clearing-house" for the immense and varied tuberculous material in the district, cases being drafted to one or other hospital as may seem desirable.

The Dispensary is also the nodus or central link (fig. 5), and this is most important, in the great network of anti-tuberculosis effort. In place of the Sanatorium, and the hospital for advanced cases, and the working colony being separate and relatively ineffective units, they are united each to the other, and all to the Dispensary. I cannot emphasize too strongly that the significance of such a conjoint scheme rests chiefly on thoroughness of organization and closeness of co-ordination. There must be an "inter-dependence absolute," as Kipling calls it, between the different parts of the system. You must not have one institution following one course and the other another. They must be severally co-ordinated under one central government.

Are there any practical difficulties to be faced? I believe these will be found slight and temporary, provided the system be developed with a reasonable amount of tact and common-sense. I should be the last to suggest that in a city with the traditions

of London there should necessarily be created independent tuberculosis dispensaries in every borough. England looks with justifiable pride on the excellent tuberculosis hospitals which have existed in London for so long. There seems no reason why the consumption hospital should not be made the nodus or centre for operations in some districts. While constituting the nodus through a well-equipped out-patient department on the dispensary model, the hospital itself would in one case afford accommodation for advanced patients, and in another become the sanatorium. Where no consumption hospital already exists in the borough, I should say commence operations with the erection of a well-organized dispensary and let the needs of the district be met by natural outgrowth from this, according to a co-ordinated system such as I have described.

Let me ask you, in conclusion, to glance once more at the two mortality curves from London and Edinburgh. Observe how similar the curve of London is to that of Edinburgh during the first ten years 1887-1896. Then pass to the curves for the second ten years and note the remarkable difference which exists. In the case of London, the drop of mortality within the period 1897-1906 is 17·6 per cent. ; while in the case of Edinburgh it amounts to 42·1 per cent. Without straining the point it is reasonable to suppose that the remarkable fall in the case of Edinburgh is traceable in some degree to the existence of an organized and co-ordinated system.

CONSUMPTION AND HOSPITAL OUT-PATIENT DEPARTMENTS.

By Miss A. E. CUMMINS.

Lady Almoner, St. Thomas's Hospital, London.

It was with great hesitation that I accepted the kind invitation to speak here to-day ; for I have no new scheme to lay before you, no scientific discovery to reveal, no mission to unfold. But I am told it may interest some of you to hear of the difficulties that exist in dealing with the large number of phthisical patients that present themselves in the out-patient department of general hospitals in London, and the way that we have been endeavouring to help them during the last few years at St. Thomas's Hospital. About 500 new cases come to our out-patient department during a year, and are found to be in every stage of the disease. They come chiefly from the very poor districts surrounding the hospital on the south side of the river, such as Lambeth, Southwark, Newington, Vauxhall, and Camberwell. Some of them are skilled workmen, shop assistants and clerks, but for the most part they are unskilled labourers in casual work. The majority do not belong to friendly societies and clubs, and have no savings to provide for the family should the bread-winner be obliged to stop work.

For such subjects it is clearly impossible to arrange institutional treatment, except for the most promising cases. If it were possible to send the hopeless cases to homes where they might end their days in comparative comfort without being a source of danger to their neighbours and families, it would doubtless save much misery. If all the chronic cases could be sent to sanatoria to learn, in those most excellent schools, how to live, and to be patched up for a time and so enabled to reassume their rôles in the world as wage-earners, it would solve many of our difficulties. If such schemes were possible—if it were possible to isolate the dangerous cases, educate the others in sanatoria—the problem of the home treatment of consumption would be simplified and its difficulties reduced ; but we all know that such a plan, for the present at all events, cannot be carried out.

As an actual fact we find that less than 20 per cent. of the cases that present themselves in our out-patients' department can be sent for sanatorium treatment. Only the very earliest cases are, as a rule, selected, and even then full consideration must be given to their social and economic conditions. The results have, on the whole, proved very satisfactory, about 80 per cent. of the cases selected having returned with the disease arrested and fit to pursue any ordinary healthy occupation or trade. These cases still need supervision and help, but, thanks to the splendid education at our sanatoria, they have learnt how to live, they are unlikely ever to become a danger to their neighbours, and, moreover, they are zealous missionaries of the gospel of fresh air and light.

On the other hand, we find that about 15 per cent. are either in very advanced stages of the disease or quite destitute, and these can only be dealt with by the Poor Law authorities and are therefore referred to the Guardians.

I wish I could feel that this was a quite satisfactory arrangement. Some of the infirmaries have first-rate open-air wards, but in some there is very inadequate treatment, the patients drift in and out, no apparent effort being made to detain them; the diet is very often limited, and they return again and again to the hospital to ask for help and treatment. As there are practically no homes for our very advanced cases, we can do nothing but try to persuade them to return to the infirmary.

Leaving aside, then, 20 per cent. for whom we may be able to provide sanatorium treatment, and 15 per cent. who are, or should be, under the Poor Law authorities, we are confronted still with a very large proportion of the phthisical patients who continue to live in their own homes and who must be tackled in their own surroundings if the problem is to be honestly faced. I feel sure you will agree with me that it is impossible to over-estimate the difficulties of this task, especially when the home condition of the majority of the London poor is taken into consideration.

I confess my heart sank when I first considered the actual possibilities of dealing with our phthisical out-patients, so as to enable them as far as possible to benefit by the treatment afforded by the hospital, and to carry out the physician's directions as to open air, diet, rest, &c. The outlook appeared quite hopeless, but after some years' work, in spite of many failures, I am inclined to think that much can be done if only the work is attacked systematically, and full notes and records kept of each individual case.

On the patient's first visit to the hospital, after the case has been examined and treated by the physician, on whose advice the subsequent treatment solely depends, we start by enquiring care-

fully into the patient's social condition, and we record on a special form particulars as to family, occupation, rent, income, &c. By this we learn if the family income is sufficient to allow of the extra expenditure needed for a fattening diet, and if there are relatives in a position to help, or if the assistance of the Charity Organization Society, clergy, or other charitable agencies must be enlisted. Then either a voluntary worker from the hospital or the district health society is asked to visit the home. We hand over to this worker the record already obtained at the hospital, so that to it may be added a full report of the hygienic and sanitary conditions of the home. For this we have a special form printed, so that none of the particular details required may be forgotten. Naturally, as it is very essential to establish a friendly footing in the home, the statistics, when possible, are obtained by observation rather than by direct questions. The real point at issue is to know whether the actual accommodation is suitable and sufficient, or if not, if it cannot be improved—the position of the dwelling, number of windows, the sleeping accommodation, how the washing is done, and if any precautions are taken for the disposal of sputum. We also want to know if the home is clean, dry, and free from dust, and something of the surroundings of the house. Furthermore, inquiry must be made as to whether other members of the household are known to be suffering from phthisis, and whether the health of the rest of the family is satisfactory. This first visit may perhaps present great difficulties to the novice, but as illness is a topic on which the London poor love to dwell, there is, as a rule, no difficulty in obtaining the *entrée* directly it is clearly understood that the visitor has no connection with the rent collector, or any of the many dreaded inspectors. Of necessity, one must be prepared to listen to much irrelevant matter, and it is also necessary to warn new workers that it is quite impossible to rely solely on the statements they may receive on the subject of the health of the family. In our district, I find that there is a sort of prestige attached to tuberculosis. I have known mothers relate with pride how many of their children suffer from it, when examination at the hospital has proved them free from any signs of the disease.

However, a good visitor, who is experienced in the work, is generally able to form a very fair idea of the actual condition of the home, and we obtain in this way a double record of a case, first from that given at the hospital, and then from the visit to the home. Many details must be subsequently added, and others altered and verified, but it is of great value as a basis on which to start work.

On next attendance at the hospital, the patient is seen, and we carefully explain to him or her the instructions of the physician, and consult him how such instruction can be carried out. I cannot but feel that the poor are sometimes treated in a rather too didactic way. It is harder to educate than to instruct. But unless they are convinced, it is unlikely that any lasting good will be effected; at any rate, we find that we get the best results when we treat them with confidence, and explain exactly at what we are aiming. At first all seems quite impossible, and as is only natural, many of them are solidly hopeless, and do not even evince the slightest interest in their condition. But when gradually they realize that we mean business, and intend to really try and improve matters, when their hopelessness is met by an equally solid determination to help them, they themselves begin to wake up.

After explaining what they ought to do, and why they ought to do it, we say that the visitor is coming again, and will continue to do so, if they will allow it, and that we do not want to interfere, but only to consult and plan with them how they can manage for the best.

We then turn to the charitable agencies, and ask their help to procure the accommodation, the bed and bedding, and the extra clothing, promising that if such help be forthcoming we will watch and ensure, as far as we can, that the help is not rendered ineffective for want of supervision. We never hesitate to ask for the bed, bedding, and clothing, but extra nourishment is a very difficult question.

A fattening diet is generally essential, but if once it is given it must be continued, and, therefore, we try first to discover how much the patients can really manage to provide for themselves. Unfortunately, milk is the most costly item in the diet, and always presents great difficulties. But the other forms of fattening foods, bacon, suet, &c., can be obtained at surprisingly low prices in some districts. For example, the patients tell me they can get fat bacon at $4\frac{1}{2}$ d. a lb. in the New Cut, Lambeth, on Saturday nights.

The poor have the vaguest notions of the true value of food stuffs. I believe you would find that beef-steak and bovril represent to the most of them the only reliable forms of nourishments. They do not appreciate how cheaply and usefully their diet may be supplemented. Lentils, haricot beans and oatmeal are almost unknown, and are regarded with suspicion. It is difficult at first to understand their different tastes in the matter of food. There is hardly an item in the *menu* of a first-class restaurant that would appeal to them, and in introducing them to recipes

for the use of lentils, split peas, and haricot beans, I may as well confess to you that we add a very powerful supply of onions. On the whole, with perhaps the exception of expense of extra milk, we generally find that the amount actually spent by the families on food is sufficient for the prescribed diet, but that help is needed to teach the value of foodstuffs, and how to lay out the money to the best advantage.

The permission of the patient is generally obtained for the cases to be referred to the medical officer of health for disinfection, but in all cases where damp, imperfect sanitation or ill ventilation is discovered, we apply to him direct without discussing the matter. For the patients live in terror of the landlord, and almost always would refuse us permission to complain; but as the report is made confidentially to the medical officer of health, there is really no danger that the existing relation between landlord and tenant will suffer, and in nearly every case improvement results.

For instance, we were much amused by the innocent gratitude that an old man recently expressed in the attention that his landlord had suddenly paid to his tenement. We had reported to the medical officer of health that the window in his room could not be opened, and evidently the sanitary inspector had called attention to various other defects, so that not only was the window made to open but the place was whitewashed and various other improvements instituted.

Each case presents its own difficulties, and the work requires much time and patience. If one plan does not work well, then another must be tried, and if that fails, yet another. I do not in any way suggest that success always follows, or that each of our patients is living under the best conditions, but I do say that it is surprising to find how much improvement may be effected, and how wonderfully the patients themselves respond, when they find that someone is working with them, is really keen, and is determined. All of them know, at any rate, what they ought to do, and personally, I confess, I never feel very discouraged when I find they have deviated from the path of truth, and told me, for instance, that they never shut a window, when my visitor has reported that she rarely finds it open. I feel that the mere fact that they misrepresent things shows that at any rate they are well aware what they ought to do. Sometimes we get a man who is very obstinate and has theories of his own. One patient last autumn came to explain to me that he thought open windows were most dangerous; he said that he had two friends who had both been sent to sanatoria, one had recovered and the other died;

he proved quite conclusively that both might have lived if left to themselves, and said that he would not incur any risk. He consents to sleeping in a room alone, but calls in on me regularly for a short argument on the subject of fresh air, though his wife has told me, in confidence, he does keep the window an inch or so open now.

On the whole we do not have much difficulty about open windows. But heavy curtains, innumerable ornaments, boxes under beds, and closed chimneys are dearly cherished, and need much work. Separate beds can be managed, though the patients dislike them, and extra sleeping apparel and blankets naturally must be provided for to make up for the loss of warmth. It is not possible in every case to provide a separate room. Four people will willingly sleep in a tiny room to preserve the sacred parlour, and it is treading on very delicate ground to suggest that a chair-bedstead might be put up in the sitting room.

When the patient is found to be living in a dark basement we insist that the family must move. It is extraordinary how curiously ignorant we find our patients are as to the accommodation to be obtained in their own neighbourhood, and they are generally very apathetic about the advantages of a change. As a matter of fact, the visitors find that the simplest plan is to look for the suitable rooms and then persuade the family to move. In this we are helped by the caretakers of the model dwellings, such as Guinness's, and they often let us know when the rooms we want fall vacant.

We have to watch very carefully the hospital attendances, as when a patient feels a little better he is apt to leave off his attendance at hospital without the permission of the physician. In a land, too, of midnight flittings we often lose sight of a patient for weeks or months, but we trace them as often as not, and in every case when they are reported to have moved beyond our reach we hand on our records to other agencies, so that they may take up the case where we leave it.

We have so far been able to arrange for one real open-air shelter to be erected in a back-yard. It is the first of its kind that has been tried in a London back-yard, and has been put up for a patient with the help of the Camberwell Charity Organization. The difficulties encountered at first were rather alarming. Finally, when erected, I believe our patient was only persuaded to sleep in it because her husband kept his window wide open, and was within earshot, and even then she needs the help of the lady next door, who kindly lends her dog to share the terrors of the shelter at night.

We have in many cases persuaded patients to lie outside all

day on deck chairs. But in these respects we are terribly behind-hand, considering the schemes that I understand are worked in New York, Boston, and other American cities. We hope very much that it will soon be possible to establish day camps in some of the parks and open spaces, and if only some sort of enclosures could be erected, I believe the patients would be willing to try the plan. People object to being seen, lying in a deck chair in a public space. A small boy whom I recently tried to persuade to lie out in the Bishop's garden, Lambeth, perhaps expressed what others feel. "It ain't the game, miss," he said, "I ain't ill, and the fellows would all come round, and think I was doing the toff."

We find no difficulty in teaching the necessary precautions as to the disposal of sputum when the patients are indoors, but, even when we provide pocket spittoons, they are extraordinarily careless in public rooms, conveyances, and in the streets. In fact, I do not believe that half of our phthisical patients ever realize the danger to others that results from this, and I have even known men who are most particular at home, expectorate on the floor of the hospital waiting room. Perhaps if the general public took up the matter more strongly, and if the law were enforced from time to time, this difficulty would be lessened.

One very encouraging feature in the whole work is the intelligent interest the patients and their families themselves take. Once aroused, their co-operation can generally be depended on; a window will be taken out, a ventilator put in, and a damp duster used for cleaning. The weight card is a subject of considerable interest to the whole family, and men are so willing to forego their daily glass of beer, in order to give the wife or child the extra pint of milk required. Care as to the washing of the clothes is difficult to enforce, but here and there a phthisical man even does his own washing rather than let his wife run any risk.

The work depends entirely on co-operation and we have received help from most unexpected quarters. We do not hesitate to call upon anyone to assist, and rarely meet with a refusal, for this is a form of personal service which appeals to most. The neighbour next door, the priest, and the employer, are generally willing to join hands, and, in enlisting their help, we feel that the work is extending beyond the actual case in question. Without co-operation little can be accomplished. The physician, the medical officer of health, the district nurse, and the charitable agency, are each alone comparatively powerless, but in co-operation and working with the patient's goodwill much can be accomplished.

One fears to seem too optimistic, and there are many of our

patients still living under deplorable conditions. Drink, want of work, and laziness so often block the way in this, as in every branch of social work. But an honest endeavour is made to carry out the physician's orders to each individual patient. As the social conditions of each are known and recorded, we do not ask them to do more than their circumstances permit, but when suitable obtain the help they need. We also believe that the spread of the disease by our patients is largely prevented by teaching the common-sense laws of hygiene and sanitation and by reporting all contact cases.

Prevention is better than cure in consumption as in other things. There will be less consumption when the public generally realizes that it is to a great extent an avoidable evil, a disease that should not exist. This Exhibition will not be held in vain if it helps to an understanding of the connection between consumption and neglect of the laws of health and sanitation.

In conclusion, if more can be done for the cases of anæmia and debility, if more attention can be paid to the mothers, both before and after childbirth, if the ignorance, carelessness, and poverty so often attendant on the first years of childhood can be combated, I am sure you will agree with me, that in the future there will be less need for costly sanatoria, and our out-patients' departments will not be so largely thronged with phthisical patients.

THE SANATORIUM.

By ARTHUR LATHAM, Esq., M.D., F.R.C.P.

Physician to St. George's Hospital and to Mount Vernon Hospital for Consumption.

I HAVE not prepared a definite lecture on the subject of sanatorium treatment. In view of the character of the audience I thought the wisest thing I could do was to take a few points and give my own views on those points as they arise. I see the discussion is headed "The Sanatorium." The most important thing about a sanatorium is the question of sanatorium treatment, and the first point that comes up for discussion is whether sanatorium treatment is worth while. You know that sanatorium treatment has been practised in this country for some ten years now, and we ought to be able to come to some more or less definite conclusion as to whether the results are sufficiently good to encourage us to go forward. Well, as far as my own opinion is concerned, there is no question that sanatorium treatment is worth while, and that it would be more worth while if we could only sufficiently co-ordinate our efforts throughout the country.

The most striking proof that sanatorium treatment is worth while is given by a consideration of the statistics before the advent of sanatorium treatment and the statistics that we now obtain with regard to the results of treatment. Dr. J. E. Pollock, of the Brompton Hospital, published in 1865 the results of treatment in 3,566 cases of consumption, treated in all stages, which had been observed specially by himself. The average duration of life of all these cases, from the first symptom of the disease to the fatal termination, was two and a half years. Dr. Pollock further found that no less than 83 per cent. of the patients whom he saw in the early stage of the disease died within five years of the first symptom.

Sanatorium treatment has altered this grim picture. In 1905 no less than 57 per cent. of the patients who were treated at the sanatoria of the Russian State Railway in 1900 were capable of full work. We see, then, that before the advent of sanatorium treatment 83 per cent. of patients in the early stages were dead at the end of five years, and that after its advent 57 per cent. remained in full enjoyment of their working capacity at the end of the same period. Now, that is a

very marked contrast and must encourage us to go forward. More recent statistics tell the same tale, and they also show that by combining sanatorium treatment with tuberculin treatment, still better results can be obtained. A further very important thing is brought out, and that is that the percentage of relapses is still further diminished. Dr. Ritter, of the Hamburg Sanatorium, has found that patients who had been treated by sanatorium methods alone showed the following capacity for full work, three years after their discharge from the sanatorium: Of the patients treated in the first stage of the disease, 72 per cent. were capable of full work; of those treated in the second stage of the disease, 57 per cent. were capable of full work; and of patients treated in the third stage of the disease, no less than 22 per cent. were capable of full work.

Patients who had been treated by sanatorium methods, together with the administration of tuberculin, showed the following capacity for full work, three years after their discharge from the sanatorium: Of the patients treated in the first stage of the disease, 95 per cent. were found to be capable of full work; of the patients treated in the second stage of the disease, 82 per cent.; and of patients treated in the third stage of the disease, 50 per cent., as against 22 per cent. when tuberculin was not employed, were capable of full work. Of course, we all know that statistics are difficult things to believe. There are a number of fallacies entering into them; still, Dr. Ritter is a man of great reputation, and I think there can be very little doubt that the main lesson brought out by these statistics is a true one.

The next thing we have to consider, having so far come to a conclusion that sanatorium treatment is practically worth while, is, how it shall be carried out. In this country the efforts so far have not been sufficiently co-ordinated, and we have not, or appear not to have, sufficiently realized that if sanatorium treatment is to give the best results it must be a well-thought-out system. We cannot take sanatorium treatment or sanatoria by themselves. They are more or less useless things, unless they are part of a very big line of defence, and unless they embrace a general scheme of dispensaries, after-care, and so forth. Perhaps the most important thing with regard to making sanatorium treatment a success is to organize some campaign by which we can get our cases in a sufficiently early stage. Every one of you who has had anything to do with consumption knows that the great difficulty among the working classes is that we cannot get the majority of them to come to us in a sufficiently early stage to be able to do them any lasting good.

The detection of the disease, in an early stage, is largely a matter of organization. The system that has been in force in France and in Germany and in America and in the Victoria Hospital in Edinburgh can very well be put into force in this country, and it has within the last year or so been adopted at the Brompton Hospital. In this system when any person is found to be suffering from consumption it follows that his surroundings are investigated, and that the people he is brought in touch with are examined if necessary. In this way patients in whom the disease would escape detection for some considerable period are observed and brought under the necessary treatment at a stage when a great deal can be done for them.

Another difficulty in the question of sanatorium treatment, which anyone who has any knowledge of sanatoria must realize, is the fact that the wives and families have not been sufficiently considered up to the present time. A man who is ill and has to go to a sanatorium, without any money left behind him, cannot be expected to get the full benefit of sanatorium treatment unless his mind is more or less at ease about the wife and family. And that, again, is merely a matter of organization and of money. But that, I take it, will be considered more fully by other speakers, as will also the further and very important thing, the question what you are going to do with these people when they leave the sanatorium. The after-care of the patients who have apparently had the disease arrested is of great importance. It is perfect folly to send a man who has contracted disease under certain conditions of bad hygiene, hard work, and so forth to a sanatorium for three or four months to get his disease arrested, and then to send him back to precisely the same conditions under which he contracted the disease, and expect the sanatorium treatment to hold good. You will find relapse after relapse occurs from no other reason except the foolish custom of sending people back to precisely the same conditions under which they contracted the disease. But there is a paper by Dr. McConnel on that particular point, and I will not go into it further.

That brings us to the question, which is also a very important question, what exactly is sanatorium treatment? I do not think any of us knew two or three years ago how it was that sanatorium treatment produced the results it does. Of course we all knew that any effort to increase the natural resistance of the body to disease was of primary importance, and that fresh air—a continuous supply of fresh air—with the avoidance of dust and wind and other debilitating influences, and a proper and sufficient supply of nourishing food, were all-important. But these things—the supply

of fresh air and the supply of good food—are not necessarily connected with consumption any more than any other disease, and so far as those two things go, they can be obtained in any place without the necessity of going to a sanatorium. They are just as good for cases of anæmia or any other debilitating condition as they are for consumption.

But what we know now is that the importance of sanatorium treatment rests almost entirely on the regulation of the amount of exercise and the amount of rest. It is a very difficult thing to know how much rest and how much exercise to give, and as far as it has been worked out by Sir A. E. Wright and by Dr. Inman and Dr. Paterson, what appears to take place is as follows: A man who is suffering from consumption in an early stage has a number of tubercle bacilli, a small number of tubercle bacilli, it may be, in some portion of his lung. These tubercle bacilli are manufacturing poison, that is to say, they are manufacturing tuberculin, and some of that tuberculin is absorbed and so gets, in one way or another, into the general circulation. If the dose of tuberculin which is absorbed is a sufficiently small one, it will act as a stimulus on the defensive forces of the body. It will bring the white cells of the blood and the other defensive forces of the body out to attack; the bacilli will be surrounded and then eaten up, and in the course of time the disease becomes arrested. On the other hand, if an undue quantity of tuberculin is thrown into the general circulation, what happens is that the defensive forces run away, there is no effort to repair, no effort at defence made at all, the bacilli are left complete masters of the situation, they multiply, the disease extends, more poison is absorbed, and so you get continual attacks of fever, and extension of the disease.

Now, as far as we can see, we can regulate the amount of poison which is absorbed by regulating the amount of blood which goes through the diseased focus in a given time. If more blood goes through the diseased focus in, say, an hour's time, it is obvious that a larger total quantity of poison will be absorbed. We can regulate the amount of blood which passes through the diseased organ by the amount of exercise. If we give too much exercise we get too much blood passing through the diseased organ, we get too much poison absorbed; the defensive forces run away, and therefore the tubercle bacilli have full play and cause an extension of the disease. On the other hand, if we give a correct quantity of exercise it produces the absorption of a small dose of tuberculin, and we do nothing but good; we inoculate the man with his own tuberculin to induce a response on the part of the defensive forces

of the body, and in this way we arrest the progress of the disease. In many cases a mile walk is prescribed, and the resulting dose of tuberculin does good. The man after a time, however, becomes accustomed to the stimulation he gets from that mile walk, and it is necessary, in order to continue to stimulate the defensive forces of the body, to prescribe a little more exercise, and so by gradually increasing the exercise we keep up the necessary amount of stimulus and eventually we get the patients well.

Looking at sanatorium treatment in that simple fashion—and it makes an enormous difference to the ease with which we can treat patients by having a theory of that kind before us—what does it necessitate? So far as sanatorium treatment is concerned, it is obvious that the first thing and the most essential thing that it necessitates is that there should be a *man* at the top of the sanatorium who shall direct the treatment, a man who shall have complete power and who shall not in any way be hampered by any lay committee or by any medical committee. The whole thing depends on the amount of exercise or the amount of rest that the individual patients can take, and if the man is interfered with in prescribing the amount of exercise or the amount of rest for his patients by any visitors or any committee, in my experience disaster is always the result. The man loses his interest and the consequence is that the detailed and meticulous care which is necessary is not given. And so far as my knowledge of sanatoria goes, in this and other countries, the whole success of the results depends upon the capacity and the character of the man at the head of the institution, and also on the amount of power that is left to him by those who are responsible for the administration.

With regard to the buildings of a sanatorium I do not want to say much, because I think that question has reasoned itself out. The days when we were spending £1,800 a bed, or £1,000 a bed, or £600 a bed, I think have gone, never to return. They are a monument of the stupendous folly partly of the medical profession and chiefly of the public. It has been shown by Mr. West and Mr. Garland down at the Benenden Sanatorium that it is quite possible to produce a really efficient and comfortable building for 200 people at the price of £100 per bed, apart from the cost of land. If you will go down to the Benenden Sanatorium you will find that it is a very convenient place and that it is in every way suited for its purpose, and that there is no necessity to spend more money than has been spent there. And you will find, if you go to Dr. Jane Walker's Sanatorium, amongst the poorer people,

that she has been able to produce sufficient buildings for her patients at even a smaller cost than that, although I do not at the moment exactly remember what it was.

As to the type of a sanatorium, that, I think, depends a good deal on the number of people you have got to treat. If there is a small number of people, if you have to deal with ten, twelve, or sixteen, or something of that kind, my own opinion is that the chalet system is a long way the most satisfactory and the cheapest; but so far as my own experience goes, when you are dealing with a larger number, 100 or 200, the cheapest is the ordinary form of sanatorium with two, or possibly three, storeys.

Then with regard to the cost of maintenance of a sanatorium. There, again, a great deal of waste takes place at the present time. The larger the institution is the cheaper will be the cost per patient: Dr. Paterson has shown at the Frimley Sanatorium that it is possible to keep patients—100 patients in a sanatorium for the working classes—at an average cost of, I think, something like £1 3s. 6d., certainly under £1 5s. a week. That small cost is brought about very largely by the fact that the patients at the Frimley Sanatorium do a good deal of the labour themselves, and that they wash up their plates, make their beds, and so forth, and further, that Dr. Paterson has found that it is possible to do without an undue supply of milk. In fact, at Frimley Sanatorium, where very good results are obtained, no milk at all is given to many of the patients, and I think the saving to the Sanatorium, without any detriment to these patients, amounts to something like £500 a year from that one item alone. Then Dr. Paterson, again, has brought about that cost of £1 3s. 6d. or £1 5s. by the continuous care that he gives to avoiding any unnecessary expenditure.

After those remarks, the main conclusion that I think must come home to us is that we do not sufficiently co-ordinate our efforts. If we have scattered all over the country sanatoria for ten or twelve people, it is obvious that the total cost of those sanatoria must be very much greater than if we combined and had sanatoria for something like 200 people. You get into difficulties at once with a small sanatorium with the man who has to run it, because you will not get a very first-class man to run a sanatorium for twelve people, and I do not believe myself it is possible for a man in the neighbourhood to look after a sanatorium in addition to other work. If a sanatorium is to be properly conducted, the person in connection with it must give up the whole of his time to it. A further point is, that as far as the working classes are concerned, the number of sanatoria available is

very, very small. You all know the difficulty that everyone has in getting a patient who has no means at all into a sanatorium. As a rule he has to wait; it may be three or four months before he gets into any institution of the kind, and during that time a very great deal of harm may have been done to that particular individual. The Brompton Hospital Sanatorium at Frimley is free, and it is the only institution of its kind, of that size, which, I believe, is free in the country, but no one will get into that Sanatorium except by a payment of £1 5s. a week without going through the hospital in the first instance, and in all probability he will have to wait some months before he obtains admission to the hospital.

It seems to me that if we are to make sanatorium treatment a success in this country, we have to do something on rather broader lines than at present, and we want to combine in some way or other in order to provide the necessary money. Now the most encouraging example of that, of what is possible, has been brought about by the work of our Chairman, Mr. Garland. I do not know how many of you are aware of the work that he has done. I do not think that he has had sufficient recognition for it, as yet. It is a work of enormous importance, and in course of time can only do untold good. He has got the postal employés of this country to combine and to insure themselves against the possibility of contracting consumption, so far as the necessary treatment is concerned. That is to say, if a postal employé has insured himself in this way, he knows that if he contracts consumption he will be given sanatorium treatment of sufficient duration, and that his wife and family will be adequately looked after. Now the way in which that is done is this. I think there are no fewer than 40,000—over 40,000 postal employés—who have joined this scheme for their own benefit. They pay $\frac{1}{2}$ d. a week in order to obtain what I have sketched out. That $\frac{1}{2}$ d. a week is deducted at Headquarters by the Postmaster-General and is put to a fund which is largely administered by Mr. Garland; and, in addition, the Postmaster-General has found it possible to give six months' full pay to any man sent to a sanatorium, and that full pay is devoted to the needs of the man's wife and family.

Now that is a scheme which is possible in any large industrial concern, and I hope that in the course of time it will spread throughout the country. I have had the curiosity to have an actuarial calculation made as to the cost to the State or to the people for a properly organized sanatorium scheme throughout the country. By taking the number of deaths in England and Wales, and multiplying that number of deaths by five, we arrive at a

more or less accurate idea of the number of people who are at the present time suffering from consumption in this country—namely, about 200,000. That number has been checked by a consideration of the figures brought out by compulsory notification at Sheffield. It is found that that number is necessarily increased by that consideration, and taking that as the basis for the actuarial calculation, it is found that any man who wanted to insure for adequate sanatorium treatment and provision for his wife and family on the contraction of consumption, could do so for a very small sum. Supposing you take it that the average cost of a sanatorium per week would be 30s., and that the wife and family would want a sovereign, that is to say, you have to find an expenditure of £2 10s. per week; and supposing you put it that fourteen to sixteen weeks are necessary for treatment in the early stage, you arrive at something well under £50 as being the cost to the individual for himself and for his wife and family, and it has been found by the actuarial calculation made by Mr. Robinson, of the Legal and General Insurance Company, that about $\frac{1}{2}$ d. a week will provide that £50. Supposing everyone over the age of 16 in this country was forced to insure in that way, about $\frac{1}{2}$ d. a week will produce £50, and about 1d. a week will produce £100, and so if everyone over 16 in this country were bound to insure against the possibility of contracting consumption so as to obtain adequate treatment in the event of his doing so, he would be entitled to something like fifteen weeks' treatment for about $\frac{1}{2}$ d. a week, and to six months' treatment or something like it for about 1d. a week. I believe that something of that kind is coming. From remarks that are made by Mr. Burns and other statesmen and politicians, I think it is pretty clear that this question is being taken up, and that eventually we shall have something of this kind, but until we do have something of this kind I am not satisfied that sanatorium treatment can give us the results that it ought to do.

LABOUR IN SANATORIA.

WORK FOR WOMEN.

By Miss JANE WALKER, M.D.,

Medical Superintendent, East Anglian and Maltings Farm Sanatoria

WHEN the sanatorium treatment first began to take form about sixteen years ago, the question of making patients do a certain amount of work during their period of treatment practically never arose. If, like many other good things, the sanatorium system of treatment in its full development came from Germany, the dealing with the subject from an industrial point of view really lies to the credit of us in England. On such a subject as this, the only way to advance our knowledge is, I think, for each of us to speak from our own experience. To talk at large of what might be done is of little really practical utility. During the early years of my work in endeavouring to cure consumption by open-air, or sanatorium, methods of treatment, I had many instances of these methods having been impressed on my patients, shall we say "not wisely, but too well." They had so absorbed the theories that they studied their thermometers in the most zealous manner, they walked most carefully at the regulation pace, they would only move with the greatest care and forethought the particular side where they knew their disease to be located, and altogether they were completely wrapt up in the consideration of their health, to the entire exclusion of any outside interests.

I think an extract from a letter written to me about a patient, a butler, A. B., will describe what I mean :—

"The difficulty is for A, B. and his wife to earn between them enough money for all the food he needs. I don't myself think that his market value as an indoor servant is now that of his food alone, even if he had no wages. He is unable, or afraid, to perform almost every duty that is expected of a man in his position. He can't draw the curtains for fear of raising his right arm, can't sweep on account of exertion or dust, can't clean shoes because it means moving his arm to and fro, can't carry the dinner in because the trays are too heavy. So the women servants do all his work, and the odds and ends are either neglected or done by

ourselves. No one can wonder if A. B. is a bit over-cautious, he looks like a man resurrected, and I don't doubt the sensation is a bit bewildering. What, to me, in my ignorance, seems strangest of all, is that the man's character appears to have changed. He used to be of an anxious, worrying turn, now nothing 'gets into him.' His wife anxiously takes thought for the future, but not he, and he is nowise unhappy as he used to be. I think of 'Jekyll and Hyde' and wonder in what regions the secret of your miracles is to be sought."

I remember, too, a boy, a clerk, sent to me by a friend working in the East End—a bad case who did very well indeed—but at the end of his time of treatment he was a useless member of society, and was hopelessly unemployable.

These and similar experiences brought me personally to the point of *insisting* on work for poor consumptives of both sexes, as part of the usual *régime* of treatment. Of course, if patients are acutely ill and confined to bed, they cannot well be expected to do absorbing work, nor would it be desirable that they should do so. But consumption is in far the larger number of cases not a disease of that kind. It is an illness lasting over many months, and even years, and during practically the whole of it, the sufferer is by no means entirely disabled. As you all know, it is not a disease attacking people at the end, but it works its ravages on men and women in the prime of life—people who are at the top of their strength, physically—for by far the larger number attacked are between the ages of 20 and 35. So that economically, if none of these thousands of people do any work, it is a very serious loss to the community. Therefore, on both personal and economic grounds, it is advisable that sufferers from this disease should be provided with suitable work, and I am asked to deal with this subject as it affects women.

In some ways, work for women is easier than the consideration of the same subject in the case of men, and in some ways it is more difficult. It is more easy, because there are endless small tasks in a community, which fall naturally into the domain of the ordinary woman—such as washing up, tidying bedrooms, making beds, mending, sewing, waiting at table and clearing away, as well as sewing for themselves, or their children. But, on the other hand, it is more difficult, because women who get consumption do not really get well quite so easily as men; to put the matter in a scientific manner, women do not display such a great resistance to the inroads of the tubercle bacillus as men, and when they are attacked, they display a greater difficulty in overcoming its ravages than is the case in men. They are, moreover, subject to more

fluctuations in the matter of their health than men are, and all these considerations make the question of their work a more difficult one. Then, too, if they are really interested, they are more apt to do too much than men are. The plan I follow is : Every patient when first admitted to the Sanatorium is kept in bed for at least a week, for purposes of observation, showing her how much food she should eat, how much she should really rest, and so forth. When she is able to get up, she sits up, and goes into meals. The next stage is taking a short walk, and then she is ready to consider the question of some definite work, and her first work will be something for the community—she will be told off to wait at table for the week, or to lay the cloth for meals, to clear away, to help wash up in the pantry, to make her own bed, and assist in the making of others, to dust her own room, and help with the dusting and tidying of the others.

Then comes the question of what definite industry she should undertake. The two staple industries that we undertake are lace-making and gardening.

The lace that we make is of the coarse Russian variety, for which there is a ready sale, and specimens of which are on view downstairs. I am afraid our specimens are very few, and not specially good, for the lace is always sold before it leaves the pillow, and it is difficult to collect enough to make any show. On the whole, we have done very well with the lace department ; several girls have earned a small income by doing it, and one of our most successful lace-makers is now doing very well as a regular worker at the Winchelsea Lace School. This work is very well suited to women, many of whom have never done any muscular work in their lives, and who will not be required to do so. My patients are taught lace-making by one of my staff, the Mistress of the Industries.

The other and the more important industry is gardening, which is in many ways an ideal occupation for delicate people, who ought to spend all their time in the open air, and of all forms of gardening the most suitable is that form of intensive culture known as French gardening. Accordingly, about a year ago, I started a French garden, a model of which is to be seen in the Exhibition, to give lucrative employment to patients. There are several points about this style of gardening which make it peculiarly adapted for our purpose. After it is once started, there is no *hard* digging, only incessant, permanent work.

Then there are several departments which give work to different classes of patients. There is the making of the straw mats which are used to cover the bell-jars and frames either from frost, or

from excessive heat. Then the frames have to be made and painted, which gives occupation to those who like, and can do more muscular work. Then there is ceaseless work in moving frames, so arranged as to size that they can be moved by two people, lifting bell-jars to allow more air, and the treatment of each plant is of such an individual character that there is endless work in garden work proper,

Then, when once a market is secured—a really difficult matter for any private person to do—if the stuff to be sold is really good enough, a French garden can be made to pay well.

With regard to the question of paying the patients for the work they do: With the lace-makers, they receive no pay at all, till they can work properly, but, on the other hand, they pay nothing for their training. When they get an order for a special piece of lace, they receive a certain proportion of the price paid.

With regard to all other work, two hours is done free, after that they receive some pay for the third hour, and more for the fourth hour. It is to be remembered that they do not want to work, and that they more often than not think that they are being put on, and, perhaps worse still, no one wants to employ them. As our head gardener says, "They spoil the stroke" of the strong, regular worker. So that the work question with consumptive patients is an uphill struggle all the way. But it is worth it, for it would be deplorable if the very means that had been taken to make them well and strong and fit for work should cause them to become unemployable.

THE AFTER-CARE OF SANATORIUM PATIENTS.

By H. W. McCONNEL, Esq., M.B.

I HAVE been asked to make a few remarks on the after-care of patients at charity sanatoria, and to open a discussion on the subject. To treat the subject exhaustively would be beyond the material at my hand, so I will, if I may, reserve myself chiefly to the experience which I have gained at Kelling Sanatorium in Norfolk. I must ask you to excuse the frequent mention that there will be of the work done at Kelling. It will not be because I think that the work is better done there than elsewhere, or because I wish to hold Kelling up as an example, but because I have worked there for seven years, and so have been able to appreciate the great good which the "after-care" work does. Indeed, I hold that a charity sanatorium without after-care does very little good, and often wastes a good deal of public money. I hope in the discussion which may follow that others will give their experiences of the work in other sanatoria, and it may be that in this way we shall find some irresistible arguments for "after-care."

The reasons why we started the after-care at Kelling were twofold—firstly, to prevent relapse, and secondly, to prevent the development of the loafer. I will take these two reasons in the order that I have given them and will say a few words on each. The stay at charity sanatoria is unfortunately far too short—at Kelling the average stay is about twelve and a half weeks. This is owing to the lack of funds and to the necessity of the patient getting back to his work. At a private sanatorium the stay is commonly for six months, and often for a year, but at a charity sanatorium, though it may be possible for the kind friends that assist to find £18, which represents about three months' treatment, a larger sum for a longer stay is usually quite out of the question. Again, the home surroundings of the patient or his work demand him back, and often it is absolutely impossible for him to be longer away, even if the money was not a cogent reason for his return. The father cannot leave his work, nor the mother her home, without causing utter destruction of their interests there,

and so the stay at a charity sanatorium is almost always too short; and it is, in consequence of this, of the greatest importance that the principles of the treatment should be continued as far as possible by the patient after he leaves, and that no unsuitable work, or work that caused the trouble previously, should be undertaken. The more the length of the stay has to be curtailed, so much the more must after-care be taken to prevent anything being done prejudicial to the patient's health or tending to lead to a relapse, and so much the more must the lessons and experiences gained at the sanatorium be adopted into the future life of the patient.

The second great object of after-care is to prevent the development of the loafer. When sanatorium treatment first came into vogue, this was a real danger. A man of the lower classes was put through a three months' course of treatment, fed highly on beef, and encouraged all the time to consider his health and to do nothing. Is it to be wondered at that he was apt to lose control of himself, and that when he left he found he could neither work, nor did he wish to? Sanatorium life is very unsettling unless this point—the tendency to loaf—is constantly combated, and it is the first important duty of an after-care committee to see to it and to develop a feeling in the institution that the inmates come there to be cured and made fit for work again. They are not meant to be patched up to live a few more years of useless life—a burden to themselves and others, but the aim of their stay is arrest of their disease and a future full of usefulness and work. (At Kelling they find this feeling kept in front of them all through their time. They see everyone that can work working, and they are compelled by the rule of the institution to do anything that the Resident Doctor directs, and most willingly do they do it, and they find in the jobs that are set them relief from the monotony of their stay, and a fresh interest in their life there.)

Before the After-care Committee began their work, all the exercise the patients had lay in a monotonous walk, which was of comparatively little use to their body and none to their mind. Now at Kelling all work who can, and the patients find in the hundred and one little jobs that the Resident Medical Officer and his assistant set them to do, just what they require to keep their muscles in activity and a feeling constantly in their minds that they are getting on and making progress, and that there is hope in the future.

The methods we adopt at Kelling to carry out this after-care fall into four heads—first, what I may call, preliminary; second, working patient plan; third, assistance and advice to patients as regards their future; fourth, subsequent after-care.

First—*Preliminary*.—I have already touched on this. It is the development of the idea that arrest and future work is the object of their stay. This is an essential though preliminary part, of after-care; for if the patients are allowed to get out of hand and to do nothing at the sanatorium, when they leave their chances are considerably lessened. At Kelling we have an officer of the institution called the Overseer, part of whose duty it is to direct the patient's work. The Resident Doctor gives the Overseer every day a list of names with the work that each patient may do attached, and the Overseer then takes him in hand and sets him to do it—cleaning brasses, cleaning windows, picking fruit, hoeing, weeding, and helping in the garden, helping in the stable and carting, light painting jobs, and, I may add, digging, and screening gravel in the gravel pits and sawing logs and chopping firewood. In these and many other ways, employment—light or heavy according to the directions of the doctor in each case—is found for the men; and the women also help in the house to some extent and pick and pack flowers, in the growth and sale of which we have quite an industry. I do not want to go further into this matter, for it is part of the every-day work of the life at a sanatorium, and has already been dealt with in other papers, but I may say this, that as the patients come from almost every conceivable trade and calling, there are very many ways in which their previous knowledge may be put to use, without any appreciable strain to themselves, and with great benefit to their health. They do not, however, always do what they are accustomed to do; they have to do whatever job is going, and often find great enjoyment in the novelty. A clicker making hay, a clerk cleaning brasses, a tailor plucking fowls, and a butler hoeing turnips, leads at times to much amusement which does no one any harm. I may repeat that, from the after-care point of view, the principle of the work at the Sanatorium is to hold out hope of the arrest of the disease and to develop the idea of the necessity of future work.

I should just like to mention here, to make my account of the work at Kelling more complete, that we began the patients' work there in February, 1902, and can claim, I think, to have been the first in the field in this method of treatment.

Second—*Working Patient System*.—This subject has already been touched on in previous papers, but as it is an essential part of after-care work, I cannot pass it by unnoticed. At Kelling it is really the after-care of ex-patients who still stay on at the Sanatorium. There are eight men and two women working patients, drawn from the class who are most likely to benefit—*i.e.*, from the earlier cases. These remain on at the Sanatorium for a

varying time, sometimes only staying two months and sometimes as long as two years. They get their board and lodging free and give their work in return, getting also a little weekly pocket money (2s. to 5s.), according to the work done. They have more definite working hours than the patients, and a more definite line of work; thus at present the ten at Kelling do the following work: One is the carpenter, and a most excellent worker he is—he made the models that are exhibited here to-day. Another is the plumber and painter to the institution, and looks after the gas engine—he made the beds in the model. A third drives the Sanatorium motor, a fourth fetches milk thrice daily and works in the garden, another looks after the stables and also helps in the garden, a sixth is employed in various jobs in the house, the seventh sees to the poultry and blows the chapel organ, and the last works in the gravel pits and helps to make roads.

The two women working patients do housework in the women's wing.

The advantages gained by a patient in being admitted to the privilege of a working patient are a further prolonged course of treatment, opportunity of gradually getting back into full work time and opportunity of finding permanent work. After being for a time at Kelling they pass on to work outside. At first we found great difficulties in getting even six working patients; somehow or for some reason the men got the idea that they were doing us a favour, and it took some time to eradicate this misconception; but now they feel otherwise and are very glad to be taken on. The result of four years' work was stated in our last report, and showed about 74 per cent. were still alive and were at full work, which, considering that some of the early cases were hardly suitable when admitted, may be deemed satisfactory.

And now we come to the third head—viz., *Assistance and Advice to Patients Leaving*.—In this matter at Kelling a definite routine is followed. Every case that enters the Sanatorium is investigated about a month after admission. By that time it is possible more or less accurately to ascertain what is the prognosis, and to decide what occupation and line of life it is best for the patient to follow on leaving the Sanatorium. Each case is considered on its own merits; a good many patients are able to return to their former occupation; others cannot, and the Committee make every effort to help these to start in a new career. Experience, however, has taught that it is much wiser, if the medical condition allows, for patients to take up their old work or work on similar lines, as they can do this more effectively and with less strain than if they attempt anything new. As regards women this feeling is more

marked still. No effort at all is made to find them new work, for most of the women have good homes to return to, and whenever this is possible such a course is recommended, as it is obvious that greater care, and greater comfort, and more suitable conditions for open-air treatment, will be found at home than elsewhere. Of course, before deciding, full inquiries are made as to the possibilities at home, and advice is given as regards suitable work and hygienic considerations.

In the preliminary and routine investigation just referred to, some of the cases are delightfully simple to deal with. Those with a suitable occupation—*e.g.*, gamekeeping, and with a master who is willing to take them back, require no advice as regards their trades. Then there is another class—*e.g.*, the young unmarried man, comparatively easy to deal with; he has no one dependent on him, and, as he can take a low living wage, it is easy for him to change his occupation and neighbourhood; moreover, he is not too old to learn a new trade. Thus a young boy in a shop can learn farming and then emigrate if his case is suitable, and I may add that the After-care Committee have, in several instances, assisted in the expenses of this emigration from the funds at their disposal. A third class, sometimes more difficult to deal with, but always repaying trouble, is one in which the worker is married, and so is more or less tied to his home, but where also the work is not really unsuitable, *but* the conditions only are bad—*e.g.*, clerk in a large office, a policeman in a crowded town beat, a railway porter in a London station. In these cases, usually with a little tact and luck in meeting a good master, it is possible to improve the conditions of the work and yet keep in the same line. Thus the clerk may get a light country job, a policeman may be transferred to a country beat, and a porter to a quiet station. Finally, we meet with really difficult cases, a married man of age with an unsuitable occupation in unsuitable surroundings. For example, we had a man who had pressed trousers for thirty years and could do nothing else; he could not fold a coat. His work lay in a large factory with twenty others whose sole occupation lay in pressing trousers. Again, we constantly get “clickers,” *i.e.*, makers of the “uppers” of boots, who work in factory rooms with forty other workers, and who lean over their work all day, or women who work in crowded rooms and who also do part work—*e.g.*, making part of a cardboard box. These demand an absolute change of work and surroundings, but it is often a choice of evils, for to do this may mean permanent unemployment and consequently starvation and relapse; but usually something can be done even here to at all events ameliorate the conditions. The two

chief reasons of difficulty in the matter are (1) an incomplete trade—*e.g.*, making part of a boot or part of a suit, which means that these workers can never set up for themselves as bootmakers or tailors, but are tied to a factory, and (2) the bad ventilation of the factory itself and the immense number working in one room together.

I have often complained to the masters and inspectors of the ventilation and have been told it was up to date, and so it often is; but, if the choice of open or shut windows lies with the men alone the majority may suffer by the stupidity of the few. *A factory should never be considered well ventilated which is only well ventilated at the option of the inmates.*

In addition to the routine plan of taking up each patient's case about a month after arrival and discussing with him what work he is to do when he leaves, each outgoing patient receives full advice on his departure, and this advice comes principally and most appropriately from the Resident Medical Officer, what to do and how best to continue his treatment, according to his particular circumstances and in the light in which he has stood work during his time of treatment at the Sanatorium. There are some points also on which we lay special stress; thus each patient is advised to have a bedroom to himself. Parents are instructed to bring up their children to some career that gives them the best conditions to resist the onset of the disease. They are shown that they have no right to leave their children crippled with a predisposition and in surroundings which make for the disease. Mothers are advised to be tidy and to avoid dust, to open windows and to air the rooms. Young men are shown the necessity of avoiding excess in any way and of leading a quiet, sensible life, and each and everyone is made to understand that they must carry out the principles of open-air treatment always, fresh air, plain food, and rest before and after meals. Thus every case leaves the Sanatorium fully primed with experience and information what to do and how to do it, and it is hoped that this will not only benefit the patients themselves, and enable them to continue a useful career, but that it will force them, whether they wish it or not, to act as educators of all those with whom they come in contact, and so spread abroad the principles of the open-air-treatment. If they do this they fully repay all the time, trouble, and money spent on them.

Fourth—*Subsequent After-care.*—By this I mean looking after the patients after they leave. This would help them very much, but it would entail more work than is possible for the ordinary staff at a sanatorium, and so can only be done privately. At Kelling we do what we can. The Resident Doctor sends to every

ex-patient at Christmas time a Christmas card with Christmas greeting on it, asking how each patient is and what he is doing ; if he gets no answer he writes again enclosing a stamped directed card for a reply, and if this fails he writes to someone whom he knows is interested in the patient, and so he keeps in touch with the majority of the cases, and is often able to advise them usefully again and give them fresh help. I may mention that so thoroughly is this inquiry carried out that in 1908 out of 900 patients asked only thirty-six failed to answer. Each ex-patient is also invited from time to time, when opportunity occurs, to visit the Sanatorium and report himself to the doctor, who then re-examines him and again gives him fresh advice.

As regards results, it is impossible to give any statistics which can be of any real value or to show the difference of results where after-care is practised and where it is not ; for there is no recognized standard of measurements of the extent of the disease in phthisical cases which is at all accurate, but it may be of interest to state that at Kelling in the last three years 351 men have been interviewed, with the following results :—

27, or 7·7 per cent., became working patients at the Sanatorium.

6, or 1·7 per cent., emigrated.

157, or 44·7 per cent., returned to their own work.

48, or 13·6 per cent., were referred to friends or other institutions.

31, or 8·8 per cent., found new work.

74, or 21·08 per cent., were unsuited for further work, and in the case of 8, or 2·2 per cent., the After-care Committee was unable to help ; while among the women 146 cases have been interviewed in the last two years, with the result that :—

9, or 6·18 per cent., became working patients ;

17, or 11·6 per cent., returned to their own work ;

7, or 4·8 per cent., were referred to friends or other institutions ;

80, or 54·8 per cent., were able to find work at home ;

30, or 20·5 per cent., were unfit for any work ;

2, or 1·3 per cent., found new work ; and

2, or 1·3 per cent., were unable to be placed.

It may be noticed from the above that the majority of the women find suitable work at home, and that very few seek out new work.

In advising on a new employment, if that is found necessary, the nature of the case and the capacity of the patient must be considered, but generally it may be stated that any employment that does not demand arduous labour or strain, and which allows of a good deal of fresh air, is suitable ; exposure to bad weather is

not necessarily harmful, but work in unventilated rooms is most prejudicial. In our Kelling report we suggest the following list of employments which we find useful :—

Light work about a farm or garden, rat-catching or rabbit-trapping.

Driving for hire, carting, or looking after a pony and trap.

Caretaking.

Gamekeeping, assisting pheasant rearing, night watching, covert beating, or partridge driving.

Helping in well-ventilated shops or stalls—railway bookstalls.

Agency work, insurance agency, rent collecting, some forms of travelling.

Country carpenter's work.

Outdoor painting.

Clerical work, especially in country offices or railway stations if well ventilated.

Estate work, looking after engines.

Motor car driving.

Check taking.

Doorkeeping, &c., &c.

In concluding this paper on After-care at Charity Sanatoria, I should like to lay stress on two points—first, that the friends, and those interested in the patient, should be advised that it is necessary and well for them to help in the matter of “after-care,” and not to leave it all to the sanatorium authorities. To the friends and employers of labour who help to send poor patients to the sanatorium, thanks are indeed due, but they should remember they would double their good work if they would help to find employment for their patients after the treatment at the sanatorium itself is over. The onus of this “after-care” lies more naturally with the friends and relations, and with those especially interested, than with the sanatorium committee. The latter, indeed, are willing to help to their utmost, but their possibilities are limited; they can give advice as to what sort of place and work is suitable, but the actual *finding* of the post should rest with the patient's friends, who can tap a much larger area than the sanatorium committee are able to in the search.

Secondly, the last and final point that I should like to draw attention to is this—that there are some sanatoria at which “after-care” is not part of the routine. This is not as it should be; in doing nothing they lose their opportunity. A three months' treatment followed by a relapse, owing to want of knowledge on the patient's part and want of interest at the sanatorium, is a waste of money. The value of sanatorium work should be gauged

by results—not immediate results, but by results, say, at the end of five years, and I hold that the little trouble required in advising the patients what to do after they leave, and in helping them in the matter as much as possible, adds, and must add enormously, to the permanent results.

To sum up, I may say that the objects of after-care work at the sanatorium are to prevent relapse and to prevent loafing; that these objects must be borne in mind when dealing with a patient all through the treatment, both when he is at the sanatorium as an actual patient, and also when he is there as a working patient, and that help and advice should be given to each patient before he leaves as to his future. If this were done systematically to every patient, and over a long period, the result at the end of a series of years among sanatorium-treated cases would be very much better than it is at present, and people would have no cause to complain that these institutions do not give adequate results for the time and money spent on them, and I may also say that after-care cannot be arranged for by legislation, but must be the result of individual effort to help individual cases.

THE SANATORIUM AS AN EDUCATIONAL AGENCY.

By DUNCAN FORBES, Esq., M.D., D.P.H.

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PERHAPS the simplest way to bring home to you the educational advantages of sanatorium treatment is to describe the methods of educating consumptives immediately before their admission to the sanatorium, during their stay there, and after their discharge.

Before admission to the sanatorium all patients are visited either by a doctor or by an inspector. If possible the visitor has a talk with the patient himself, and gives him instructions—verbal and printed—regarding the routine required to be followed if the spread of consumption is to be avoided.

If the patient satisfies certain conditions he is admitted to the consumptive wards of the Infectious Disease Hospital. All patients are put to bed and kept there until after the doctor has examined them. During that examination very frequently they are told to cough, and nine out of ten, in spite of previous instructions, cough straight into the doctor's face as he bends over them; this gives the doctor an opportunity of warning them never to cough near another person's face, otherwise that person may inhale the infective spray which they produce while coughing; he also tells them that most of the spray can easily be caught by holding a Japanese handkerchief before the mouth during coughing.

Except in the mildest of cases the patient is kept in bed for a day or two in order that his pulse-rate and temperature at rest may be ascertained. During this time the female patients observe that the ward is kept free from dust and spotlessly clean by damp dusting and damp sweeping, and they are told that, especially in the patient's bedroom, damp cleansing only should be practised.

It is found that most women, except very advanced cases, swallow their "spit" during these days in bed; the danger of this habit is pointed out to them, and they are made to use the spittoons placed by their bedsides. In the spittoon the patient finds that a small amount of fluid is left after cleansing, so that small amounts of sputum may not dry in the dish.

The patients have usually to be told by the nurse not to use their handkerchiefs for drying their lips after coughing, as rapid drying occurs on the handkerchief, and on the next occasion it is

used infective dust is shaken into the air; the patients thereafter quickly learn to employ paper handkerchiefs instead. So little use is found for the ordinary handkerchief at the sanatorium that many patients do not carry them at all, except when they have a cold or nasal catarrh.

Later, the patient, except he is an advanced case, gets up for at least a part of the day. For the patient calico pockets are provided, into which they put their sputum bottles and paper handkerchiefs. These calico pockets are washed at least once weekly. The male patients have the calico pocket tacked into their handkerchief pockets, the women carry the calico pocket hanging from their waistband. When the patient is out in the grounds he may use several paper handkerchiefs; on his return to the ward he at once places these in the fire or in the bowl at his bedside. The contents of the sputum bottles are each day poured down the slop sink, and the bottle is well rinsed and cleansed by the patient, and is left inverted on a shelf. The nurse, in the morning, after seeing that all the bottles are clean, which she can easily do after they have dried, brings them slowly to the boil in a weak soda solution. It is inconvenient to let each of our thirty patients boil his own sputum bottle daily, but, as mentioned above, the more important work of emptying and rinsing is left to him. On discharge the patient takes the sputum bottle with him, and he is told if he breaks it he can have it replaced at the Public Health office free of charge; this prevents many poor persons, after the first breakage, giving up the use of the bottle.

One of the most valuable lessons learnt at the sanatorium is sensitiveness to stuffiness; it is only by living constantly in the fresh air that one comes to recognize and enjoy its benefits. One must learn by actual experience that the stream of air from a wide-open window is not injurious, whilst the current from a window a few inches open plays on only a small part of the body, constitutes a draught, and gives rise to colds. Many patients on their return home sleep with their bedroom windows wide open.

Another point of considerable importance is frequently impressed on the sensitive patient in a disagreeable way. He is sitting talking to another patient when he is seized with a fit of coughing; he finds that the other patient at once withdraws beyond arm's length. This brings home to him that he manufactures an infective spray while coughing, which he may project an arm's length. Patients coughing at meals are required to turn from the table at once.

A minor point is the infectivity of the saliva. In a paper by Neild and Dunkley which appeared in the *Lancet*, pointing out that scrapings from the tongues of tuberculous patients frequently contained tubercle bacilli, the matter appeared so important that Dr. R. M. Courtauld, the resident physician at the Infectious Disease Hospital, started a confirmatory research. Up to the present he has examined fourteen scrapings (the scraping is done with a match) from patients in whose sputa tubercle bacilli have been recently found, and in only two of these were tubercle bacilli found. Although, therefore, compared with the sputa of the patients examined the saliva seldom contains many organisms, and these usually are present only for a short time after coughing, still the recognition of the fact that the saliva is at times infective, leads us to teach the patients not to lick envelopes before sealing, not to kiss on the lips, not to transfer anything, for instance, a comforter, from their own to other persons' mouths.

Up to the present one has chiefly dealt with how the patient learns to avoid spreading infection, but in the sanatorium he also learns how best to prolong life.

(a) He has to be regular in his habits—he goes at a fixed hour to bed, he rises at a set time.

(b) He rests for half an hour before and after meals, and learns that this *régime* is a powerful aid to digestion.

(c) At certain times in the day he takes breathing exercises in the open air.

(d) When fit, he takes a certain amount of physical exercise; this, in the Brighton Sanatorium, consists of walking on the level, walking up an incline, playing certain games.

All those things can be done more or less at home.

Before discharge the doctor examines the patient, and at that time makes inquiry as to whether the patient will have a bed to himself on his return home. If not he is advised to lie so that his face is turned away from his companion, or to sleep with his head at the other end of the bed. He usually promises to start at once with his bedroom window wide open, and also to clear his bedroom of all unnecessary furniture, hangings, carpets; also to cover his floor with linoleum, or have it bare.

In the description already given, mention has been made of the way the doctors, nurses, and patients educate the consumptive in hospital; but before leaving this subject one would emphasize the powerful influence his fellow-patients have over the consumptive. One of the most powerful influences governing a man's actions is selfishness—instinct of self-preservation—call it what you will. The consumptive is told that he can be reinfected by his

own sputum and also by that of others. It is to his own interest, therefore, to be careful of his "spit," to cover his mouth while coughing, to live in a clean, well-ventilated room. It is also to his interest to see that his companions in the ward are equally careful as to the disposal of their sputum, also that they do not approach him too closely whilst coughing. A few intelligent patients can aid, in large measure, the efforts of the doctors and nurses.

Factors which militate against success of all teaching interfere less with sanatorium teaching. The desire of the consumptive is usually to conceal the fact that he is affected with the disease; therefore, although one visits a notified patient and advises the use of a spit-bottle, he frequently does not take it to his work, because he knows that his masters and fellow-workers would suspect him of having consumption. This is especially so in occupations where much dust or waste material lies about the floor. Tailors, shoemakers, iron founders, upholsterers, in many places of business can spit about the floor without any notice being taken of it, while the use of a spit-bottle might lead to suspicion, and at times even dismissal. On the contrary, if one visits a notified case and offers him treatment at the sanatorium, the patient makes arrangements with his master for getting away for a period. Secrecy has gone, and one objection to the use of the spit-bottle has gone with it. Whilst visiting patients in the slums of a large town, one is frequently told that they would willingly open their windows at night, but are prevented from doing so because of dust coming in and smells arising during the removal of the night soil along the narrow alleys on which the small yards abut. The patient who has experienced the advantages of fresh air is far more likely to submit to a temporary nuisance for the sake of fresh air than the person who has not.

The same argument applies to other factors preventing the consumptive in greater or less degree from following our instructions. In short, if instructions only are given to the patient, he is asked to begin doing things of which the benefit seems problematical; whilst if you start him carrying out the instructions whilst medically treating him in a sanatorium, he experiences the benefits resulting from carrying out such instructions, and, therefore, continues to do so.

How long does it take the patient to learn? Whilst working with Dr. Niven in Manchester, I visited over 1,000 phthisis patients, and one found little difficulty in making plain to persons of average intelligence the routine for the avoidance of infection. Most people can understand with no hospital training at all, and some carry out the instructions who have had no sanatorium

treatment, but the majority learn the routine only by seeing it carried out and by carrying it out themselves over a considerable period.

The carrying out of the rules must become habits. Certain persons easily acquire cleanly habits as to their sputum, others take a longer period; but it is found that the stay should be, if possible, one month. Although education is the chief object Brighton has in view, the patient comes for cure or improvement, and not for education, and if one did not keep the patient for a month many patients would not come at all. As a matter of fact, one is keeping nearly all patients at present for six weeks.

Providing, then, that one is satisfied as to the advantage to be derived from education in a sanatorium, the practical question arises as to how corporations can best provide sanatoria. Manchester uses its Small-pox Hospital for advanced cases; Cambridge, at my suggestion, uses empty wards in its Infectious Disease Hospital for adult cases. In Brighton, since 1902, 942 consumptives have been admitted to the Infectious Disease Hospital, and no case of other infectious disease has occurred amongst them. The number of cases treated and their ages are given:—

Ages		Number treated		Ages		Number treated	
Under 5 years	..	16		25 to 35	..	270	
5 to 10	..	53		35 „ 45	..	177	
10 „ 15	..	58		45 „ 55	..	88	
15 „ 20	..	102		55 and above	..	26	
20 „ 25	..	152					
Total number treated				..	..	942	

It will be seen that 14 per cent. of the cases are under 15 years of age. From the block plan of the Brighton Hospital it will be seen that the phthisis pavilion is only 92 ft. from the diphtheria ward, yet when going for walks outside the hospital the consumptives pass quite close to both the scarlet fever and diphtheria wards. *Direct contact between children is what is to be feared the most*, but children are always in the company of adults when outside.

Carriage of infection by nurses is guarded against by allowing no nurse to go from the diphtheria ward to the consumptive ward without having negative swabs from her throat and nose. Any nurse who contracts scarlet fever is not allowed on duty in the phthisis ward for at least two months after convalescence. The bedrooms of the phthisis nurses occupy one corridor in the administrative block, those of the diphtheria nurses another, while the scarlet fever nurses sleep over their own pavilion. The phthisis nurses also occupy a separate dinner table, but otherwise they mix freely with the other nurses.

The experience of Brighton proves that phthisis patients run no appreciable risk on treatment in an infectious disease hospital.

THE MUNICIPALITY AND CONSUMPTION.

By JOHN DOUGLAS STANLEY, Esq., M.D., M.R.C.P.

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THE active way in which the public, lay as well as medical, have taken up the question of the prevention of tuberculosis has brought many questions to the surface for consideration and discussion—questions which are not so easily settled as at first seemed likely. One of these unsettled questions is, what should be the attitude of the municipality towards the consumptive patient? I do not think that any will deny that a large proportion of preventive measures should and must be in the hands of the sanitary authority—that is, the methods of disinfection which in large measure result from notification, and on which follow, logically, the efforts directed towards instructing all concerned in precautions necessary to prevent the spread of infection from the consumptive patient to others. The sanitary authority alone can undertake these measures with efficiency and it alone should be responsible in the interests of economy and dispatch. It is not with this, then, that we are concerned, but with the wider question—the patient. This has been faced in some places, but in others the sanitary authority seems uncertain of what should be done, as may be seen from recent events in Dundee. It may have come to the notice of some here that Dundee was on the point of owning its own sanatorium. The Council, it seems, had passed the scheme, but so much public opposition was raised that at a special meeting the agreement to take over the Sidlaw Sanatorium as a free gift was cancelled. To narrow the issue, we may say at once that, admitting for the moment the expediency of the sanitary authority's intervention, this can only have to do with those persons who are unable to help themselves towards treatment—that is, the working classes living in small holdings and mixing closely with their relations and neighbours, under oftentimes bad conditions.

There are two points for consideration: (1) What is the best way of dealing with individuals who are found to be suffering from lung tuberculosis? (2) What is to be done, if anything, with those patients who have so far benefited by treatment as to be able to

earn, or part earn, a living? The first of these questions has been faced in Birmingham, and it will be of interest to this meeting to hear what has been done. The City Council some time ago decided to deal with the consumptive patient and to possess a municipal sanatorium for the purpose. Birmingham is well situated within easy reach of what may be considered "desirable sites" for an institution of the kind required, and several were offered or suggested. Finally, after careful consideration, an estate was purchased on the Cotswolds about 4 miles south from Cheltenham—that is, 52 miles from Birmingham. Personally, I think the situation ideal; it is 800 ft. above sea-level, and commands an extensive view to the South-west of the Severn country. The source of the Thames is only a short distance away. The air is exceedingly invigorating and the scenery is superb. To those who do not know the Cotswold scenery I suggest that they go and see.

The estate consists of 380 acres, of which 320 have been let off, and 60 are retained for the sanatorium. A private house some fifty years old, with good offices and well laid-out gardens and grounds, is used for the administration quarters for the resident medical superintendent, the matron, and staff, and for this the house required but little alteration, and that chiefly in the kitchens. For the patients *châlets* have been built in two extensive crescents, one for men and one for women. Each patient has a separate room 12 ft. by 10 ft. All these open in a terrace in front and on an open corridor behind, and which gives access to the bathroom and closets. There are, in addition, detached rooms for any case requiring special management. There is accommodation for forty patients in the *châlets*, which are constructed on the grouped system as more convenient and economical than the "single" system. Further, they are brick built and faced with rough cast stucco. It was considered that the cost of buildings of a more permanent character would in the end be no more than for wood structures, which require a greater expenditure in painting and maintenance. The total cost was estimated at £8,500, inclusive of furniture.

The staff at the sanatorium consists of a resident medical superintendent, a matron, three nurses, and ten servants (six women, four men). There is no need to give further details of the sanatorium itself, as these do not differ materially from those in general use, so I pass on to describe the methods of selecting cases.

In the first place it must be understood that only those patients are eligible for admission who are residents in Birmingham, and they must have been so for twelve months. Every medical practitioner within the city boundaries is supplied with a special form, to be filled up for those persons whom he considers to

be fit cases. This form is then sent to the Health Department at the Council House, and on its receipt the case is visited by the phthisis inspector, who is an employé of the Health Committee. He obtains all information concerning the patient as to duration of the illness, family history, circumstances under which that patient lives—*i.e.*, separate sleeping room or bed, state of the rooms or house, conditions and locality of work and wages, what precautions (if any) are taken to prevent spread, possible source of infection, in fact, all information likely to be of use. The patient is then instructed to come up for medical examination by the examining physician as to his or her suitability on medical grounds. It will thus be seen that all cases come through the medical practitioners within the city. Lay persons, societies, and institutions cannot notify cases.

OBSERVATION CASES.

It has been very clearly laid down by the Health Committee that only cases in an early stage of the disease shall be admitted, and of these only such as are likely to be permanently benefited by treatment at Salterley Grange. This is an important rule, and is of great importance and assistance to the examining physician. This, then, is one of the leading features of the Birmingham Municipal Sanatorium scheme—it is reserved for the earliest possible cases, for cases that are going to recover so far as it is possible to judge.

The arrangements for the selection of notified cases are convenient. The Health Committee were anxious from the first to avoid any unnecessary expenditure, and so did not propose the building or taking of premises for the examination of patients, as it would have entailed rent, possibly upkeep, cleaning, and the services of a nurse and attendants. They decided to have the services of an examining physician, and should he be a member of the staff of one of the hospitals, to endeavour to come to an arrangement with the committee of that hospital for the use of consulting rooms. This was done, and such an arrangement was willingly agreed to by the Committee of the Queen's Hospital. By this they give the Health Committee the use of the medical out-patient consulting rooms on an afternoon in the week for the examination of those patients who have been notified to the Medical Officer of Health as needing treatment at the sanatorium. The arrangement is particularly satisfactory, as I have the attendants and the services of one of our own nurses, as well as the conveniences of a thoroughly equipped department. In return the Hospital receives a donation of £25 from the Town Council.

In every case after examination a letter is written by the examining physician to the medical man who notified the case, stating the result—*i.e.*, if accepted or if rejected, giving the reasons. In the majority of cases this is the same—the disease is too advanced, or the patient is likely, on account of family history, &c., to advance rapidly. Those patients who are accepted are required to give an undertaking to stay three months at the sanatorium, or longer, if considered advisable by the resident medical superintendent. Further, on leaving the sanatorium they are required to come up periodically for examination during the ensuing two years. When accepted as suitable, patients must provide themselves with the necessary clothes, &c. If this be beyond their means, they are assisted by the local organizations, as the City Aid Society or the Charity Organization Society. They find their own way to Cheltenham, but are conveyed free of charge to the sanatorium.

It is quite unnecessary to trouble you with what takes place after the patient's reception at Salterley, as there is nothing special or very different there from what is the practice in other places.

As to the kind of case sent for examination, generally speaking the majority are impossibles; they are cases in a more or less advanced state. For this there are two reasons: firstly, cases of lung tuberculosis are not always recognized in the early stages. It is, I know, not quite so easy as might be supposed, and those who see a great deal of chest disease, and of lung tubercle in particular, know well that it may be, and often is, difficult to decide that early tuberculous infiltration is present, especially among the class of patient that comes within the scope of a sanitary authority. It is among such very difficult to get temperature and weight records. The artisan classes do not consult their doctor for a little cough or because they feel undue fatigue, or are going off their food. Those here who are attached to the staffs of general hospitals will also bear me out when I say that numbers of cases are found to have marked lung tuberculosis who were unaware that anything serious was the matter. I believe, therefore, that the recognition of early phthisis in poor districts will always, or for some time, be unsatisfactory. But I also believe that the existence of a scheme such as the Birmingham Municipal Sanatorium will greatly help, in that it will put those who practise among a working-class population more on the watch for early cases, knowing that the means are at hand for doing something practical.

The second reason for so many hopeless cases being notified

is that patients are likely to, and do, insist on the doctor sending in their names. These know perfectly well that there is not the least chance of the case being passed, but they also know that if they refuse, the patient (and his friends) will very probably go to another practitioner. So it comes, as I myself anticipated it would, that doctors fall back on an independent person, and the onus of refusing the patient is removed from their shoulders.

As you will gather, the object of the Birmingham scheme is to restore to industrial efficiency as many individuals as possible ; the whole system is directed to that end, especially the rigid selection of cases. But there are certain factors over and above the medical suitability of certain cases. For instance, there is the question of married as against single persons, especially men. So far as results are to be anticipated, there is a greater probability of single men turning out the best. This is a point on which it would be interesting to hear the opinions of those present to-day. It is probable that there will be greater difficulty in getting married men with family responsibilities to give themselves up to treatment in the same way that those who have none could do. Already there has been some difficulty at Salterley with married men, and some have left before the expiration of the three months.

There still remain two great questions to face, and I doubt if we can yet expect to work out the answers to them. The first is, what is to become of the discharged patients, men and women? How are men who have been away from work even for the comparatively short space of three months to find employment, especially in view of the fact that they are damaged? They are sent away for treatment by the ratepayers, and can these be expected to do anything for them? What is to be done to find them employment that will allow of their continuing the routine (though greatly modified) of treatment which they have learned at the sanatorium, and for the period of two years during which they are to be kept under observation? I may say at once that this has not been discussed in Birmingham. Individuals have offered suggestions, as, for instance, giving them employment as tram conductors and drivers, but nothing has come of it, and how far it would succeed is at present doubtful. Here comes in the idea that unmarried men are likely to give better results, as under the circumstances they might reasonably be expected to take jobs at a lower wage-rate than those with responsibilities. Nor is the question of the women any less difficult. If married, they must perforce return home ; if unmarried, there are obvious difficulties in the way of their finding employment other than indoor. Perhaps in the future it may be possible to get them, both sexes, back to

the land. This is another of the many great questions which public opinion may help to solve when the public have been instructed by meetings such as this. And something will have to be done or else there will be a risk of all the good achieved, at so much expense, being undone in a very short time.

The second question is quite as difficult, and is this: What is to become of the rejected, who form the largest proportion of those sent for examination? They are frequently the worst type of case, yet these go back to their homes to inflict their relatives and neighbours. It is true that once having come under the notice of the Sanitary Authority through notification, whether compulsory or voluntary, they are looked after more or less by the Authority, in that they are visited by the phthisis inspector. Thus in Birmingham during last year 1,907 visits were paid by the inspector to 865 cases, and he was able to bring about considerable improvement in the conditions under which the patients were living; 264 notices were served to cleanse rooms, and during the year 724 houses were disinfected, an increase on previous years. The patients are instructed by the inspector as to taking precautions to prevent spread; he issues printed leaflets, authorized by the Sanitary Authority, and having reference to the protection of food, separate sleeping accommodation, sputum disposal. This is work and good work, and it is satisfactory to note that it has resulted in greatly improved conditions, and that in many instances the patients and relatives co-operate in the attempt to reduce risk. Still the fact remains that great numbers of phthisical patients are at large in the more densely populated portions of the city, a source of infection to the community; for it is too much to expect that those means, which in more favourable circumstances can practically do away with risk of infection, are likely to be as rigidly employed by working-class people, many of whom, it must be admitted, are densely ignorant and hard to teach.

This is likely to be the question to settle soon: How best can a sanitary authority deal with open cases of phthisis among artisans? Is the provision of all-night hospitals advisable, and if so, feasible, for cases who are still capable of earning? In my own work I have come across many cases where the system would have been of great use, cases in which the main difficulty in treatment arises from the impossibility of cutting of the wage-earner's income. It seems to me that philanthropic efforts might do much good on these lines.

But what is to happen in the case of those who are hopelessly affected, just waiting for the end? There is the suggestion of

removing them to some sort of hospital or asylum. In many ways this would be ideal, but the difficulties are obvious, one being the number of cases and the hardship, for we must admit the difference between a case of progressing consumption and one of scarlet fever or small-pox. Are half-measures likely, in these cases, to do any good, that is, to take them away for a period to teach them more efficiently the methods of reducing the risks of contamination. Possibly some such compromise may be tried before long in Birmingham, and Dr. Robertson has the idea of using the empty small-pox hospital for the purpose.

We must admit that all classes of the public have to be taught how to prevent the spread of consumption; the better educated are learning the lesson rapidly, as the existence of this Association shows. The working classes are also learning, thanks to the energy of many workers, but one of the most important methods of teaching this lesson, as any other lesson, is by practical demonstration. Therefore we must teach them the difference between free ventilation and rooms with pasted-up windows, stuffed chimneys, and curtained doors. This can be done during a stay in hospital, even for advanced cases, and at the same time they can be drilled in expectoration, sputum disposal, and the many other important details of prevention.

Whether early and confirmed cases are to be treated together is a question on which some difference of opinion may be expected, but as may be gathered, the idea of the Birmingham Municipal Sanatorium scheme is to get hold of early and curable cases and to cure them, and only such cases are accepted. The great difficulty with institutions supported by philanthropy or similar methods is the exclusion of advanced cases. Beds are filled by patients who are not going to be permanently benefited in many instances, though there is no doubt that they may, and often do, improve wonderfully so long as they are under treatment. Personally I feel strongly that the Birmingham scheme is the right one—save as many as possible by taking them away for treatment in the early stage. This is the lesson Birmingham wishes to teach, or the example she wishes to set—whichever you like. It means something tangible. I feel that it is only a municipal scheme that can do this. I do not think that the municipalization of medical work right and left is at all desirable, and I feel strongly that in many cases it is not at all for the good of the public, and the socialization of medical practice would, I believe, be a huge mistake. But a municipal sanatorium for cases of phthisis is different. I may here refer again to the Dundee affair. An interesting letter appeared in the *British Medical Journal* for

May 29, from Dr. James, of Edinburgh, one of the leading authorities on lung diseases. Dr. James says he is strongly of opinion that Dundee people did just as they ought to have done in throwing out the scheme of a municipal sanatorium. He instances the failure of municipal isolation in infectious diseases of all kinds. He goes on to say that what danger of infection a consumptive presents is dependent on individual conditions and surroundings rather than upon the disease. That is to say (I am quoting the letter), that a consumptive who himself, or through his friends, has the will and the power to exercise what is practically only cleanliness, is not a source of danger to the community at all. Sociologically, too, I hold (says Dr. James) that the municipalization of sanatoria at the present time would be a mistake, inasmuch as it would tend to misdirect from its proper channels what energy a community can afford for its own improvement. Dr. James ends his letter by saying that in this latest example of municipal interference in Dundee, the people there have done wisely in acting as they did.

Now in what Dr. James says there is much truth. I am with him when he says that the consumptive patient who has the will and the power to exercise what is practically only cleanliness is not a source of danger to the community. I believe the public are getting tuberculosis infectivity on their nerves. But does Dr. James realize the difficulty of inculcating what is practically only common cleanliness? Who is to do it? Slum missionaries, inspectors, health visitors, and a host of persons in and out of uniform may, but you require a sanitary authority to enforce it. This, I take it, is part of the scheme of "municipal interference." But on the question of "municipalizing a sanatorium" I join issue at once with Dr. James. I do not for a moment suggest, nor do I think anyone does, that all sanatoria should be under the control of municipalities or county councils, or any such authorities. But that a municipality should own a sanatorium is quite different and greatly to be desired. There they can send from among the poor or the working classes, in the words of a Minute of the Health Committee, "Only cases in an early stage of the disease, and of these only such as are likely to be permanently benefited by the treatment," and so, as I have already said, do something tangible. It is only when a municipality or similar body owns a sanatorium that this becomes possible, and it is to emphasize this—the great feature of the Birmingham scheme—that I have referred at length to Dr. James' letter, and to those who hold the same view. If a sanatorium is privately owned or supported by philanthropy, the selection of cases is, in my opinion, impossible. The mixing

of advanced or progressing cases with early ones has a bad moral effect. The death of a patient from phthisis in a sanatorium is a most depressing event. When admission is through subscribers' letters or nomination, either the expectation of curing early cases will not be fulfilled, or the funds of the institution will suffer if many cases are refused admission. Philanthropy can do untold good, and the care of cases of a more advanced nature may be its great fields; but if a sanatorium is to be wholly reserved for early cases, I think it must be managed on such lines as we are trying in Birmingham.

THE MUNICIPALITY AND CONSUMPTION.

By E. W. HOPE, Esq., M.D., M.O.H. Liverpool.

THERE is usually a general resemblance in the various problems of sanitation encountered in all towns, but the character, detail, and degree of the difficulties to be overcome in different towns, or even in different parts of the same town, vary greatly; hence it is that no two cities approach the same ends in precisely the same ways; their necessities vary, and the detailed preventive measures of one will not altogether fit the requirements of another. Nevertheless, it is by comparison of the different methods of different localities, and by adopting what can be usefully be followed, that benefit results.

Tuberculosis illustrates this perhaps more than any other form of communicable disease, its greater prevalence in one place usually implying either that some of the favouring causes are imperfectly ascertained, or that, although obvious enough, it has not yet been possible to overcome the difficulties in dealing with them.

In making comparisons of progress, it must be remembered that diagnosis to-day is more accurate than formerly; fewer cases of tuberculosis escape diagnosis to-day than was the case a generation ago.

Tuberculosis in its various forms has for many years been known to be associated in Liverpool with insanitary surroundings and bad conditions of life. Dwellings in courts and alleys—often damp, dark, dirty, frequently overcrowded, and so constructed that a foul and fœtid atmosphere takes the place of sunlight and pure air—are the breeding-places for tuberculosis, and conditions approximating to these, whether of the home, the school, the workshop, or place of business, favour its growth and spread, and it is with conditions such as these that its prevalence is notorious.¹ Poverty, intemperance, ill-feeding, prejudicial habits or occupation, anything, in fact, which tends to debilitate or to lower the constitution increases susceptibility to the disease.

Tuberculosis is transmissible from person to person. It is also capable of being transmitted in quite another way, namely, from

¹ At the International Congress on Tuberculosis, held in Paris, 1905: "The problem of healthy dwellings will always rank first in the prophylaxis of tuberculosis."

animals to man, more especially through the medium of the milk of tuberculous cows, indeed, some eminent experts regard this latter as of even more importance as a source of infection than the communicability from person to person; the safest course, however, is to recognize the danger of each. Now note, it is the close, dark, dirty, ill-ventilated, and overcrowded cowshed which favours the disease in the cow, just exactly as similar surroundings favour it in the human being.

The liability of transmission *from person to person* is obviously very variable, and is affected by various conditions; in early stages of phthisis and in tuberculosis of internal organs other than the lungs the risk is small, if any, but when there is copious expectoration large quantities of bacilli may be discharged, which may be dispersed into the atmosphere in the act of coughing or sneezing, and inhaled or swallowed by others. A careless patient in bad surroundings may easily become a source of infection.

In those cases where personal *infection is possible* the risk is greatest when the surroundings are bad. In well-ventilated, properly constructed places, and with due precaution the risk even from them is trifling.

Again, the susceptibility of the individual who inhales or swallows the bacilli varies; constitutional predisposition, the habits, the occupation, the intemperance of the exposed person may prepare the way for it. In numberless cases the likelihood is that the bacillus is swallowed or inhaled without any ill effect.

It will be seen, therefore, that the consumptive patient must not be always and under all circumstances regarded as a source of danger to others.

Attacks of consumption and other forms of tuberculosis are, in the main, and under ordinary conditions, recovered from. A feature of the disease, however, is that it may disappear altogether from the person who has had the attack for a very prolonged period, perhaps for years, and then reappear. It may be that the disease has remained latent all that period, or it may be that the patient has had a re-infection. But surroundings will always favour its re-appearance.

The various views of experts on this and other points are of great interest, and although of a technical character, can be conveniently studied by those desiring more information.

A highly gratifying feature in regard to tuberculosis in England and Wales is the remarkable decline in the disease which in the last half century has accompanied the progress of improved sanitation in the country, a decline which, if it stood as the only

result of preventive measures, would fully justify the expenditure involved. No other forms of pulmonary disease—for example, bronchitis or pneumonia—show any decline at all comparable with it, nor any indication of being similarly affected by measures of general sanitation.

In order to correctly appreciate this decline, it is of the utmost importance to thoroughly grasp and understand the conditions with which tuberculosis was associated at the period of its maximum prevalence, and to study the circumstances which, step by step, have preceded or accompanied the remarkable decline referred to. Unless this is done, no correct estimate can be formed either of the circumstances operating in its causation or of the relative value of the various preventive measures which have been adopted.

Anything approaching detail would lead me beyond the scope of the present purpose, but a brief description is necessary for purposes of comparison.

From a report of a Special Commission of Inquiry, instituted some sixty years ago, into the health of the great towns of England, there is no room to doubt that Liverpool in many respects was, from the sanitary standpoint, behind any of them, while its position as a rapidly growing seaport rendered it of all places most liable to become the final resting-place of broken-down seafarers. The whole conditions of the town were absolutely favourable to the dissemination of disease, and from the day of that Commission of Inquiry onwards, perhaps even before that day, Liverpool has without intermission, and with such growing lights and increasing powers as she could obtain, and with such money as she could afford, been the seat of war against tuberculosis.

We learn from the report referred to, as well as from other sources, that 1,000 inhabitants were dwelling in houses so aggregated and so constructed as to be from these circumstances alone *unfit for human habitation*, and that 40,000 were living in cellars. We learn also of the absence of light and ventilation, of the darkness and the filth; and not this alone, but of *the overcrowding*, more especially of the cellars and of the lodging-houses which were unregistered and without supervision; we learn of the condition of schools, wretched in the extreme, dark, confined, damp, and dirty, used as dwelling, dormitory, and school-room, the atmosphere offensive by filth; we note the absence of water supply and of draining and scavenging, the whole conditions of the town being aggravated by extreme poverty and the constant immigration of destitute people.

The conditions of the dwellings alone, in fact, then, and for years afterwards, constituted, as far as tuberculosis was concerned, a gigantic experiment upon man. Nothing is more useful or instructive than a careful study of the difficulties encountered and the results of the millions of money and the years of labour expended in remedying these evils, their step by step diminution, and the coincidental decline of the disease now under consideration.

But I must not digress into ancient history, but refer to the decline since 1895, the year of extension of the city area. In the year 1895 the city boundaries were extended, and the city then included a population of 652,000 people. The rate of phthisis mortality amongst the population during that year was 1·9 per thousand. It has steadily declined since that date, and in 1907 was 1·49. If the phthisis rate of 1905 had remained stationary and had not dropped as it has done, there would have been in the interval approximately 1,000 more deaths from phthisis than actually did occur, and at least 10,000 more sufferers from it than there are to-day.

For many years a Committee of the Corporation, known as the Insanitary Property Committee, was engaged in demolishing this worst description of insanitary areas in the city, consisting of small three-roomed back-to-back houses aggregated together in "courts," and replacing them to a limited extent by sanitary dwellings *upon the same site*, the balance of cottage building being left to private enterprise, and taking place in the suburbs. This Committee, with a view to give a greater emphasis to the *re-building* aspects of its duties, in the year 1900, changed its title from Insanitary Property Committee to that of Housing Committee.

Here let me observe that whilst the construction of the Liverpool court-houses was originally vicious, it is not the practice for more than one family to be in them. Whereas the dwellings occupied by the same class in some towns were once mansions, and although they are good in construction for one family, they are exceedingly bad when they are occupied by a dozen families.

Both, on the other hand, seem to be alike in this, to a great extent, at all events, they are owned by people who are none too well off and who have very little to spare in keeping the dwellings in the necessary state of repair. There are, in addition, large numbers of large sub-let houses. It is probably more difficult to exercise supervision over the larger sub-let houses than over the court houses in Liverpool, so that each class of house has disadvantages peculiar to itself.

To return, dwellings have been erected by the Corporation practically upon the sites of the insanitary areas which they replaced, and are reserved not for any person who makes an application for one, but only for the people disposed by the action of the Corporation from condemned insanitary dwellings, condemned cellar dwellings, and so forth—that is to say, for people who, in most cases, cannot afford to pay the full market rentals, the balance of the rentals being made up out of the rates. These people constitute probably not less than 80 per cent. of the total inhabitants of these Corporation dwellings, the only material alteration in their circumstances being the change from a dwelling which was unfit for human habitation to one that is.

When the insanitary areas were condemned I myself gave evidence before the Grand Jury as to the great amount of phthisis and diseases of the lungs amongst the occupiers of those dwellings. What is the condition among those same people under their new surroundings? The phthisis mortality-rate in the Corporation dwellings, taken as a whole, notwithstanding the history and character of the occupiers, was, during 1907-08, remarkably reduced, being 1·35 per thousand, actually lower than that of the city taken as a whole, and very considerably below that of the districts in which the dwellings are situated. No practical sanitarian would suggest that if, instead of spending the money in demolishing the slums, purchasing the sites, and erecting the dwellings, it had been spent in providing sanatoria and in removing and maintaining the diseased people therein, that the results would have been at all comparable either in benefit to the city or to the inmates of the dwellings themselves. That would have been putting the cart before the horse.

But besides these houses designed for the very poor, 1,400 well-constructed four-roomed cottages under £12 a year rental have been erected in the last seven years by private enterprise in suitable situations on the outside of the city, and 5,000 houses at a rental of between £12 and £18 mostly in the suburbs. In all of these houses the amount of phthisis is extremely small.

Since 1864 the number of insanitary houses demolished by the Corporation because they *were* insanitary is approximately 8,000; the total cost, including that of schemes now in hand, is £919,084. The demands of increasing commercial necessities have also helped in clearing away slum dwellings, not less than 8,000 having been cleared away to make room for warehouses, business premises, &c.

Overcrowding also is notoriously favourable to the spread of tuberculosis, but subletting is now under reasonable control, a minimum of 400 cubic feet being required for each person.

The number of PERSONS, not families, occupying single rooms in tenement houses is 8,527 ; the number of PERSONS occupying two rooms in tenement houses is 11,935. In Dublin, 21,000 *families* each occupy single rooms !

The importance of improved housing receives further illustration in the case of our soldiers. Anyone who has made the least study of military hygiene will know what the condition of the barracks was in regard to cubic space, more especially fifty years ago, and what it is now. Tuberculosis in the Army has fallen, according to Sir Alfred Keogh, from 26 per 1,000 in 1860, to 2 per 1,000 in 1906. The decrease in the military population has been greater than in the civil population of England. "Taking the Army serving in the United Kingdom only, we find that whilst the death-rate of the civil population at the military age has fallen by 50 per cent., that of the Army has fallen by 90 per cent." The difference in the amount may, according to Sir Alfred Keogh, therefore be fairly credited to the changes in the soldier's life and surroundings during that period, and he adds that "the greatest change that has occurred has undoubtedly been in the direction of better housing."

I have referred to the evils associated with overcrowding.

The control of subletting of dwelling-houses, and the control of common lodging-houses, have received the most careful attention in Liverpool. When the houses of this kind were first registered it was found impossible, owing to the alleged extreme poverty of the people, to ask for a larger cubic space per person than 250 feet. To ask for more would, it was urged, mean turning the people into the street. As the years went on, however, this amount was increased to 300 and then to 350 cubic feet, and now 400 cubic feet are insisted upon as the minimum cubic space per person in a sub-let sleeping room.

A large staff of inspectors has always been necessary to enforce these regulations, but as the people have got to understand them and become accustomed to them, breaches of the law become less and less, showing clearly enough that amongst the same class of people, earning the same wage, with the same social instincts, improved sanitary conditions can take place with time and patience. It is almost unnecessary to emphasize the important bearing of these points upon the prevalence of tuberculosis, one section in the by-laws relating to lodging-houses being that the windows must be opened for definite and specified hours during the day, unless exceptional circumstances prevail. They may, of course, be open as long as the tenant pleases, but he must keep them open during the specified hours.

In Liverpool, as elsewhere in England and Wales, the decline in the phthisis rate has been more marked amongst females than amongst males. Whether the male be more susceptible than the female or not, there is no doubt that the occupations and the habits of males tend to expose them to greater liability than women. Dusty trades, those involving prolonged exposure, exert their influence, whilst the vicissitudes of sea life, varying and precarious employment, and the number of broken-down men coming to the city in search of employment, still further explain the greater incidence of phthisis upon males ; moreover, it is generally acknowledged that on the whole men are less temperate than women. On the other hand, the woman is more in the home, and the improvements which have taken place in regard to housing benefit the female to a larger extent than the male.

The rates of mortality from phthisis in Liverpool show, besides the general decline, another interesting point, and that is, that of late years the maximum mortality is taking place at a later age ; in other words, death is postponed and the fight for life prolonged. For example, during the last three years ending 1907, there is a decline at each age period up to 50 years of age.

A word as to the old Parish of Liverpool. What is known as the Parish of Liverpool is the central part of the city, abutting on to the river and comprising the oldest parts of Liverpool. The well-to-do residents have long since left it, and it is now largely occupied by those sections of the community with whom the struggle of life is hardest. Precarious and unsettled labour of the unskilled kind is a feature of the district, associated with evidence of extreme poverty ; but it is here that the greatest efforts towards sanitary improvement have been made. Meantime the decline in the number of deaths from phthisis per 100,000 of the inhabitants following upon these sanitary measures is deserving of study, and shows in something less than twenty years a decline of nearly 14 per cent. in the males and 33 per cent. in the females, notwithstanding the fact that there have been, and are, continually drifting into the lodging-houses in this part of the city derelict and indigent men from all parts of the country.

Forms of tuberculosis other than phthisis may be regarded as practically non-infectious. The large majority of the cases of phthisis come under the same category, whilst the remainder are infectious only under circumstances favourable to infection, and have little, if any, tendency to spread where reasonable precautions can be adopted. For example, in the great consumption hospitals of the country, notwithstanding the constant exposure of the attendants on the sick, infection is extremely rare. The same

observation applies to the results, so far as they can be ascertained, of the Liverpool Hospital for Consumption, and the Liverpool Poor Law Institutions, in which large numbers of consumptive patients are treated.

All of these experiences confirm the view that it is the vicious domestic or living conditions which lie at the root of the evil, and it is against these that sanitary effort has been directed. A large and suitably trained and qualified sanitary staff has for years been at work to ameliorate these conditions, endeavouring to convince the people that however much the Corporation may do for them, they can, and they must, do at least as much for themselves, if the full benefits are to be derived.

The results of these efforts have been to approximate the living places and the surroundings of the people to the requirements of sanitation, to remove the breeding-places of disease, and to substitute conditions as favourable as it is possible for people to live under. These works, needless to say, cannot be regarded as finished, notwithstanding demolition of insanitary property, rehousing the dispossessed, and the provision of wide streets and open spaces, parks and gardens, baths and other similar necessities for health.

To summarize the principal efforts made to combat tuberculosis would be to summarize the whole of the great sanitary operations which have been carried out with such good results for the extended period already referred to.

But of more recent years measures of a more specific kind have been taken, for example, since the year 1899 many thousands of cards of instruction have been distributed, giving advice to consumptives and those who live with them, as to the ordinary regulation of their lives. The form is shown in the Exhibition. Early in 1901 a voluntary system of notification of cases of consumption and other forms of tuberculosis was inaugurated, a special form was used for these notifications, the object being to ascertain as far as possible particulars of cases in which some action on the part of the Health Department could be taken with advantage. The ordinary notification fee has been paid in each case, since the service rendered involves skilled technical knowledge on the part of the person rendering it.

At the time when this system was commenced the question had been discussed as to the advisability of seeking powers to include tuberculosis amongst the notifiable diseases. In view, however, of the divergence of tuberculosis in essential particulars from the ordinary forms of infectious disease it was plain at that time that compulsion would be regarded with disfavour, and

sufficient material for the education of public opinion upon the matter was not available.

Eight years' experience of the voluntary system of notification and ten years' experience of education by the distribution of cards of instruction and in other ways have not been without their effect, and it is interesting to notice that in Sheffield, where compulsory notification was adopted in 1904, the number of notified cases to every 100 deaths, during a period of three years, varied but slightly from the number notified per 100 deaths in Liverpool during the same period. This would suggest that the voluntary system in Liverpool has grown in favour, and has probably resulted in bringing most of the cases to the knowledge of the Health Department. Furthermore, these preliminary measures facilitated the work relating to the compulsory notification of pauper consumptives, which will certainly be followed by additionally useful results.

The medical inspection of school children, as now developing in Liverpool, promises to be a most valuable auxiliary.

Notices have also been distributed to be exhibited in factories, workshops, and other places, relating to the dangers of spitting. Parliamentary powers were sought at one time to make promiscuous spitting in public places an offence, a proposal which, although a majority of the City Council voted in favour of it, did not obtain the statutory number of votes required to include the clause in the Bill.

In connection with the University Laboratories an Association has been established by which the sputum of suspected patients can be examined at a very trifling cost.

More recently, the system which is now evolving of the medical inspection of school children will open up further avenues of action.

It has been noted that poverty and its train of evils hamper sanitation in Liverpool. It is probable that there is a larger amount of poverty, apart from pauperism, in Liverpool than in other large cities.

It is in Liverpool that a larger proportion of the total deaths takes place in workhouses and public institutions than in other large towns in England, and a further sidelight is thrown upon the struggling poverty by the hostility to measures having for their object the protection of children from the hardship of, for them, excessive labour; for example, objections were raised to the regulations under the Employment of Children Act, on account of the loss to the family income of the earnings of the little children, notwithstanding that the employment was seriously and obviously

detrimental to the interests of the children. Considerations such as these indicate the nature of the additional difficulties arising from poverty.

For many years the dispensaries and hospitals have given valuable aid in the amelioration of the conditions of the consumptive, and excellent work has also been carried out at the Out-Patient Department of the Liverpool Consumptive Hospital. None of these institutions, however, is exactly comparable with the French tuberculosis dispensaries, as at these latter places material aid, food, and clothing are given as well as medical guidance. Neither are they comparable with the Edinburgh dispensary system.

The Consumption Hospital, Mount Pleasant, consists of a well-equipped hospital and sanatorium, containing seventy beds in all. It was built, and is supported, by private philanthropy, and the Institution was a pioneer one, being the first in the country established with the object of the treatment and the cure of consumption.

Sanatorium accommodation for cases of phthisis is also provided at Heswall Sanatorium, by the guardians, twenty-four beds; Fazakerley Hospital, by the Corporation, fifty beds.

At all of these institutions cases from time to time appear in which the patient is the breadwinner, and in which there *would be great advantage in having some fund to support the family whilst the patient is in hospital.*

The hospital provision in the workhouse infirmaries for consumptives amounts to about 600 beds, and there is no doubt that the patients are as comfortable and well cared for in these institutions as they could possibly be in any other. The difficulty, of course, is that an ill-conducted patient, who is not amenable to teaching or discipline of any kind, may leave when he likes, returning to a bad home, which he makes worse by his own indifferent habits. For him compulsory powers similar to those applicable to ordinary infectious diseases are necessary.

Moreover the educational value of even a short stay in hospital is very considerable.

It must not be overlooked that the treatment of consumption in hospitals and workhouse infirmaries has for a great number of years, up to a point and with limitations, been a helpful preventive measure, by receiving for longer or shorter periods advanced cases of consumption amongst poor persons. Although many, perhaps the majority, either left the institutions or remained outside at times when it was most desirable that they should be treated within its walls, yet it is probable that the various Poor Law

institutions have not been without a valuable effect in lessening the dissemination of the disease.

These facts again raise the question as to whether or no pauper consumptives, or iadeed any consumptives whose reckless mode of life or whose general surroundings are such as to render them a danger to those with whom they associate, should not be compulsorily detained in a curative institution for the purpose of isolation, for the same reason that the law now authorizes the detention of persons suffering from a dangerous infective disease. It is not improbable that such powers would require special legislation, but they would discriminate between the consumptive who is harmless and the consumptive who is dangerous.

Tuberculosis and Milk Supply.—The investigations of many experts of the highest eminence have led them to the conclusion that tuberculosis is at least as frequently introduced into the system by swallowing as by inhalation ; be this as it may, constant and unceasing efforts have been and are made to ensure that the milk supplied to the city shall be free from tubercle. This can only be assured by keeping cows under healthy conditions.

Regulations relating to the milk supply were adopted by the Health Committee on August 9, 1894. The Committee had been in touch with the Liverpool Cowkeepers' Association, and a deputation from the Association attended a meeting of the Committee.

The object of these regulations is to minimize tuberculosis, but there was some apprehension at the time they were framed that regulations of too stringent a kind might result in transferring the trade beyond the city limits, where little or no supervision took place. Liverpool was then, and is still, dependent for about half of its milk supply upon the country cowsheds, where there is still very defective supervision. It was in consequence of this that in the year 1900, owing to the frequent introduction of tubercular milk from the country, special Parliamentary powers were obtained by Liverpool to prohibit the importation of tuberculous milk, and the necessity for these powers is shown by the fact that upwards of 300 sanitary authorities even to-day have made no regulations whatever under the powers which they possess for the supervision of cows and cowsheds.

The disappearance of tuberculosis from the milk of cows kept in the city, whilst it is so relatively frequent in the milk of cows kept in the country, is very remarkable, but one need only look at the country cowsheds from which tubercular milk comes for the explanation.

It is true they are surrounded by beautiful air and all the sun

that shines, but all this beautiful air and sunshine are carefully blocked out. The cowsheds are small, dirty, dark, and with a foul air, the very places for the breeding and the prevalence of the diseases of the cow, exactly as with the human being.

The well-known Corporation milk depôts, where milk is pasteurized, and milk for infants is provided, furnish an additional safeguard as regards the milk supply, so far as those using this milk are concerned, but these depôts are not sufficiently availed of by the public.

All poor consumptives under treatment as old patients, or at home, are periodically visited by trained officers, male or female. The illustrative cases show the frequency, almost the uniformity, with which the patients and their friends are following the advice which has been given them. The hospital, as well as the visitor, plays a helpful part in educating the patient as to his mode of life, and from this aspect a short stay in a hospital where attention is given to educate the patient is most valuable to him. It is obvious that in but few cases can the patient be kept in hospital until he is absolutely cured, but however short his stay he can, if he is at all amenable, be instructed as to his subsequent conduct. The experiences of the Fazakerley Hospital bear this out, the number of patients not amenable to the discipline, or who were removed contrary to advice, being exceedingly small.

Hospital provision for the late stages as well as the early stages of the disease is necessary, and there is abundant scope for the charitable in giving help to families whose bread-winner may be in an advanced stage of consumption. No doubt a great deal is done already by philanthropic effort to meet these needs, and boards of guardians on the other hand have fulfilled an important part in providing for those poor who are incapacitated by sickness, either from this cause or from the multitude of other causes which afflict them.

Infected rooms and articles are cleansed and disinfected as fully as possible in the same manner as such action is in operation as regards ordinary infectious diseases.

With regard to making the notification of tuberculosis obligatory, I believe that the time has arrived when this might be done without hardship. I do not suggest that it should be scheduled with other forms of infectious sickness, nor that the usual action which is taken in regard to infectious disease should follow in the case of tuberculosis ; it is unnecessary, but a special modified action to meet the necessities of this case would result.

In Scotland the scheduling of phthisis as a compulsorily notifiable disease was followed very promptly with an amended

Act of Parliament to adjust the consequences of the order, but with this adjustment the compulsory notification seems to be very useful. Certainly, in England, the compulsory notification of pauper consumptives is unattended with any difficulty, so far as I am aware.

Persons desiring fuller information are referred to the following, viz :—

Reports of Royal Commission, and various Reports of Medical Officers of Health upon the Health of Liverpool up to the present date ; “Sanatoria for Consumptives and certain other aspects of the Tuberculosis Question,” by Dr. H. T. Bulstrode, 1908 ; “Prevention of Tuberculosis,” Dr. Arthur Newsholme, 1908 ; various papers and addresses, &c., by Drs. Broadbent, Calmette, Koch, Niven, Osler, Ransome, Tatham, Woodhead, and others ; and, in addition, Reports of the Registrar-General.

TUBERCULOSIS AND THE SCHOOL.

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THE subject I have to present to you is one of considerable importance, and also one of some difficulty. It is of very great importance because, as we all recognize, the child is the father of the man, in the sense that what the child grows up to be, that the man is, and more or less remains. Everything, therefore, which affects the child, whether it concerns health or education, is of the greatest importance to the adult, and—since the nation is represented by the sum of its adults—also to the nation. A question which affects both the health and the education of children, both reacting upon one another, is necessarily one of great importance. The difficulty of the question arises somewhat in this way. We are all of us so impressed with the necessity of looking after the child ; we are all so extremely anxious to look after the child, and so conscious of the helplessness of the child, that the tendency is to attempt to do too much, and to let our sentiment outweigh our judgment. There is also the risk that, in attempting to do everything for the child, we may sometimes forget that the child will ultimately become one of the parents of the next generation, and that what we teach it as a child will show itself afterwards in the adult, and affect his children. Thus, if we take the whole of the management of the children away from their parents, we diminish the feeling of parental responsibility, and bring up those children to look upon the care of children as a something which has nothing to do with the parent ; and you may be perfectly certain, if they learn that as children, they will put it into effect afterwards as parents. Therefore, we have to be very careful, whilst safeguarding the health of the children, that we do not undermine the responsibility of the parents.

This question of tuberculosis at the school would, I think, be better expressed as "Tuberculosis as it affects School Life," because it is impossible to put, as it were, a ring fence round the school and consider the school apart from the other circumstances of the child's existence. The school is only one part of the child's life, and an important part, no doubt ; but not only does the school experience

react upon the rest of the child's existence, but the other phases of the child's life react upon its school life, and we cannot consider the question of tuberculosis in schools without going a little further afield, and discussing to some extent tuberculosis in children before their school existence, and the influence of certain conditions not directly connected with school life on tuberculosis. We must, in fact, enlarge the scope of our enquiry a little bit beyond the school.

First, with reference to the period of life of the child before it begins to go to school, we may take it for all practical purposes that the school life is from 5 years of age to 15, although, of course, in the elementary schools in London many of the children go long before they are 5 years old—from 3 years upwards—and some remain at school after 15. But, practically speaking, the school life extends from 5 to 15 years.

Now, tuberculosis affects children in various ways. Not only do we have lung tuberculosis in children, as in adults, but it is during child-life that tuberculosis affects the bones and the joints, and produces those deformities which have such a large influence on the after-life of the individual, crippling him very often, altering the whole course of his existence, and modifying entirely the kind of work for which he will be fitted.

If you refer to the diagram hung in the hall, you will see that it shows the proportion of the different forms of tuberculosis in children under 5 years of age; that, according to my definition just now, is before the school period commences. Nevertheless, it affects the child afterwards, and the results of such early tuberculosis are not always got rid of quickly; they may remain permanently.

Here we have in one column the deaths from consumption of the lungs, and you will see that is the smallest of the three—1,271 deaths in the year 1907 from consumption of the lungs in children under 5 years of age. Tuberculous meningitis, or brain fever, gives us a very much larger number—more than three times as many deaths as from tuberculosis of the lung. Then we have tuberculous peritonitis and tabes mesenterica—known as tuberculosis of the bowel—giving again 2,895 deaths, nearly three times as many as in lung tuberculosis. Finally, consumption of the bones, joints, glands, and general consumption, give a total death-roll of 2,073.

The main thing that the diagram shows is that it is not, as in adults, consumption of the lungs that we have to take chiefly into consideration in the very earliest years of life. It is tuberculosis of the joints and bones, giving you that spinal disease which produces hump-back, and the hip disease which produces so much permanent lameness. These two manifestations of tuberculosis,

coming in the first three or four years of life, cannot be disregarded in speaking of the influence of tuberculosis on school life.

Now, we will consider the subject, first of all, from the point of view of prevention. When you are dealing with a disease which, as I have just pointed out, causes so much deformity—in some cases permanent defects, which affect the individual through life—obviously it is more important to prevent such a disease than to confine ourselves to the question of treatment. But here we are met by the question whether prevention and the school have anything in common.

The fact is, that for preventive measures we must go to the place where the disease is chiefly bred, and we find that the origin of all these cases of tuberculosis is to be found in the homes rather than in the schools. But here, again, I think that the school authority ought at least to have a large say in the question of prevention. Surely, if the parents accept free education for their children, they owe something in return. Those people who try to persuade the mass of the population that they can get everything for nothing are not only silly but dangerous to the community; silly, because to expect that you can get anything without paying for it is contrary to all natural and economic laws. You must pay somewhere or other; you do not always know how you pay, but it is an absolute certainty that you must pay in some way or another. The people who take free education must pay; they do not pay in money, therefore it is called free education; but in one sense it is not free, because they will have to pay in some other way. I think, perhaps, it is the best way for them to pay by doing something to help their children, and I should suggest that they should be made to pay somewhat in this way.

I do not like my own expression “made to pay,” because it raises resentment in all our minds, but there must be some sort of compensation, and one way in which that compensation may be met is in furthering the advantage of education to the child. Putting it more clearly, if the parent accepts the free education, the parent should also accept the responsibility of seeing that the conditions under which the child is living and is brought up are such that it is able to gain the greatest advantage from the education. That, of course, necessarily brings us to a thing we should, at first sight, rather resent—that the school authority should have a word to say as to the condition of the homes. Yet I am afraid it is one of the necessities of the case, for the ability of the child to enjoy the full benefit of its education depends very largely upon the conditions of home life, both before and during

the school period. However, at present we must dissociate the home from the school, and this aspect of prevention hardly comes into my branch of the subject—namely, tuberculosis in schools. But in one sense the question of school life and prevention does arise, and that is in the consideration of whether a child, by attending school, is put to some additional risk of becoming infected by tuberculosis. If many of the children attending the school were suffering from a form of consumption which is communicable to others, then, of course, there would be a risk that the healthy child attending the school might become infected with tuberculosis, and we should have to consider this from the preventive point of view. I may say at once, however, that the risk of a child becoming infected in school is extremely small. There are occasionally consumptive teachers, and the consumptive teachers may be a source of danger. There is usually a certain number of consumptive children attending the school, but children rarely spit, they very rarely cough out any of the phlegm which comes to the throat during a cough, and, as we know, it is by the expectorated phlegm that the disease is most frequently spread. We may say, with regard to children attending the schools who have tuberculosis in any form, that they generally have it in what we call the “close” form; that is to say, there is no discharge from sores or expectoration; no discharge from the body by means of which the germs of the sick child can be distributed to those around it. It is only in the very small minority of tuberculous children in the schools that there is any risk of transference of their disease to other children attending the same school.

When we come to the number of children attending schools who have tuberculosis, there seems to be a certain difference of opinion; with regard to the forms of tuberculosis other than that affecting the lung, the figures are not very easy to get. The child with hip disease and the child with spinal disease, do not attend the ordinary school; if they are able to attend at all they go to one of the special schools and do not endanger other children, because in those special schools precautions are taken to prevent the harm that might result from the presence of an infective child. When we come to tuberculosis of the lungs in children, there is little room for difference of opinion as to its extent. It is a small proportion, whether we take England or foreign countries. I have taken for the purposes of this paper the results of examinations in London, Brighton, Edinburgh, Aberdeen, Blackburn and Leith, by different observers—various places in England and Scotland, and I find as a result that out of 5,400 children carefully examined—I mean examined stripped to the waist, and not

examined through the clothing—only 35 were found to have tuberculosis of the lungs—a percentage of 0·6. In order to show you, by comparison with the figures in a foreign country, that that is not so wide of the mark, I find that in Berlin, out of 228,000, the proportion was 0·8 per cent. In Wurtemberg, 8,000 children examined gave a percentage of 0·6 per cent. So that in Berlin, in Wurtemberg and England, the proportion works out at very much the same—that only five or six children in every thousand attending the schools are found to have tuberculosis of the lung ; yet this is a sufficient number to make it worth while to aim at still further reduction.

Then we come to the management of those tuberculous children and those who are predisposed to tuberculosis. In regard to these figures, perhaps one might say that, if you are going to look upon every child that is delicate, every child that is badly fed, as a possible consumptive, you may be right ; because we know what a very large proportion of people in after life do develop, and often recover from, tuberculosis of the lung. But it will not do to take our proportions of the children that really want treating from what we imagine may eventually be the number of consumptives. We might suggest, to be on the safe side (that refuge of the people who do not quite know where they are), that it would be a good thing to send nearly all the children in London to the seaside, and keep them there for ten years, and bring them back strong and healthy people, and expect them to settle down comfortably in London as town-dwellers. It would be a very nice thing, but it is not practicable, and we have to consider rather those who have consumption than those who may possibly afterwards develop it.

Now, the first essential thing, I think, is that there should be better means of supervising the home conditions. That shows the importance of putting the school medical officer in close touch with the medical officer of health for the district. Then you want open-air schools for those children who are actually suffering from tuberculosis ; this has already been tried—in Germany it has long been tried—and everyone acknowledges the importance of this, though few are prepared to say how the expense is to be met. But undoubtedly, to get these tuberculous children into the open air and do their school work with plenty of fresh air, is a matter of very great importance.

Then we want invalid schools for physically defective children, children suffering from deformities, from spine or hip disease ; and we want to take care that those children who because of their infirmity are unable to attend school at all, but have to go to

hospital, sanatoria, and convalescent homes, shall not, during the long period it takes to treat those diseases, be altogether cut off from educational advantages. We want to have provision for the children still to go on being taught whilst in those institutions for the care of their health; and when we remember that most of those children are, because of their illness, debarred from taking part in the same work that the healthy child can do, and are hampered in their after life by their infirmity, we see how important it is for them to get full educational advantages, so that they may be able to earn their living by their brains if unable to earn it by their hands.

Finally, I think it is very important in all large cities, where the children are living in crowded slums, that provision should be made for getting those children, not for a week or a fortnight, but for several months, into the country, where they might be boarded out, but under conditions where their education is not interfered with, so that they may every year for three or four months have the advantage of fresh air and continue the advantages of their education.

I feel I have only touched the fringe of what is an extremely important and very large subject; but I hope I have at least covered it sufficiently to put before you the different points that have to be taken into consideration in determining what is best to be done for the tuberculous child during its school life.



